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# FOREST STATISTICS FOR CALIFORNIA

CALIFORNIA
FOREST AND RANGE
EXPERIMENT STATION
GEORGE M. JEMISON, DIRECTOR

FOREST SERVICE - U. S. DEPARTMENT OF AGRICULTURE

# FOREST STATISTICS FOR CALIFORNIA

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# FOREWORD

The Forest Survey, authorized by the McSweeney--McNary Act of 1928, is a nation-wide activity of the Forest Service, U. S. Department of Agriculture, and is designed to provide a comprehensive inventory of the forest resource of the United States. In California, this work is the responsibility of the Division of Forest Economics, California Forest and Range Experiment Station at Berkeley.

The Survey has a five-fold objective: (1) To make an inventory of all forest land and the standing timber on that land. (2) To determine the current and probable future rate of timber growth, and the productive capacity of the forest land. (3) To determine the rate of timber depletion through cutting, fire, insects, disease, and other causes. (4) To determine the present and expected requirements for lumber and other forest products. (5) To provide, through correlation of these facts with one another and with other economic knowledge, a basis for formulating local, State, and national forest policies and management plans.

This release presents statistics of forest area, timber volume, and ownership for California as of January 1, 1953. These statistics are based on Forest Survey data collected from 1946 through 1952 and adjusted for changes up to January 1, 1953. Data on timber growth and annual cut are for the year 1952. Lumber production by mill-size class is shown for 1951, the last year this detailed information was collected.

The first ten tables in this report are standard in all Forest Survey reports so that readers may combine or compare the data with similar data for other forest regions. The remaining tables present detailed forest statistics for California by major forest subregions. Timber volumes are not presented for counties because sampling was not designed to provide estimates for such small areas.

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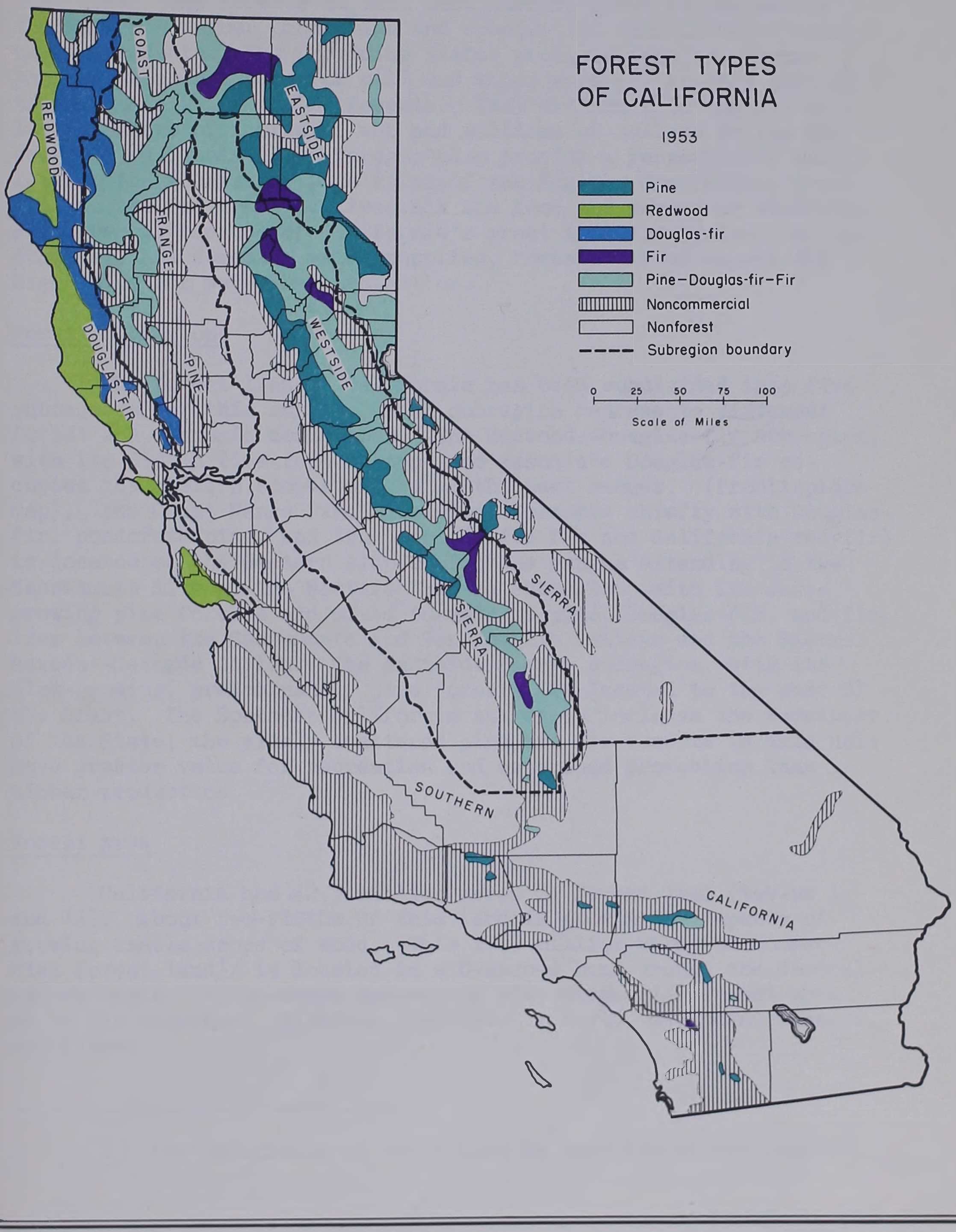
# FOREST TYPES OF CALIFORNIA

1953



# THE FOREST SITUATION

In California, forest land makes up 42 percent of the total land area. The forests on this land furnish about 13 percent of the Nation's lumber production and substantial quantities of other timber products. But providing timber products, and the accompanying wages and jobs for mill and woods workers, is only part of the economic value of the forests. They attract into the State large numbers of tourists, who add millions of dollars to the incomes of residents. The forests also provide a recreational outlet for the increasing population of the State. The forests provide forage for domestic livestock and food and cover for wildlife. Furthermore, because of California's great need for irrigation, industrial, and domestic water supplies, forests are of especially high value for watershed protection.

## Forest Subregions

The forest land of California has been subdivided into five subregions for this survey. Each subregion represents different forest and economic conditions. The Redwood--Douglas-fir subregion, with its distinctive redwood type and associate Douglas-fir occupies the western slopes of the north coast ranges. (frontispiece map). The Coast Range Pine subregion, forested chiefly with Douglas-fir, ponderosa pine, and true firs (white fir and California red fir) is located on the eastern slopes of these ranges extending to the Sacramento River. The Westside Sierra subregion, with its fast-growing pine forests and mixed forests of pine, Douglas-fir, and fir, lies between the Sacramento and San Joaquin Valleys and the Sierra Nevada--Cascade divide. The Eastside Sierra subregion, with its slow-growing, predominantly pine forests, is located to the east of the crest. The Southern California subregion includes the remainder of the State; the widely scattered pine and fir forests in this unit have greater value for recreation and watershed protection than timber production.

## Forest Area

California has 42.5 million acres of forest land (tables 1 and 12). About two-fifths of this land is growing or capable of growing usable crops of wood. This 17.3 million acres of commercial forest land[1/] is located in a U-shaped band around the Central Valley Basin. Fifty-three percent of this commercial forest area is in six counties: Siskiyou, Humboldt, Trinity, Mendocino, Shasta, and Plumas.

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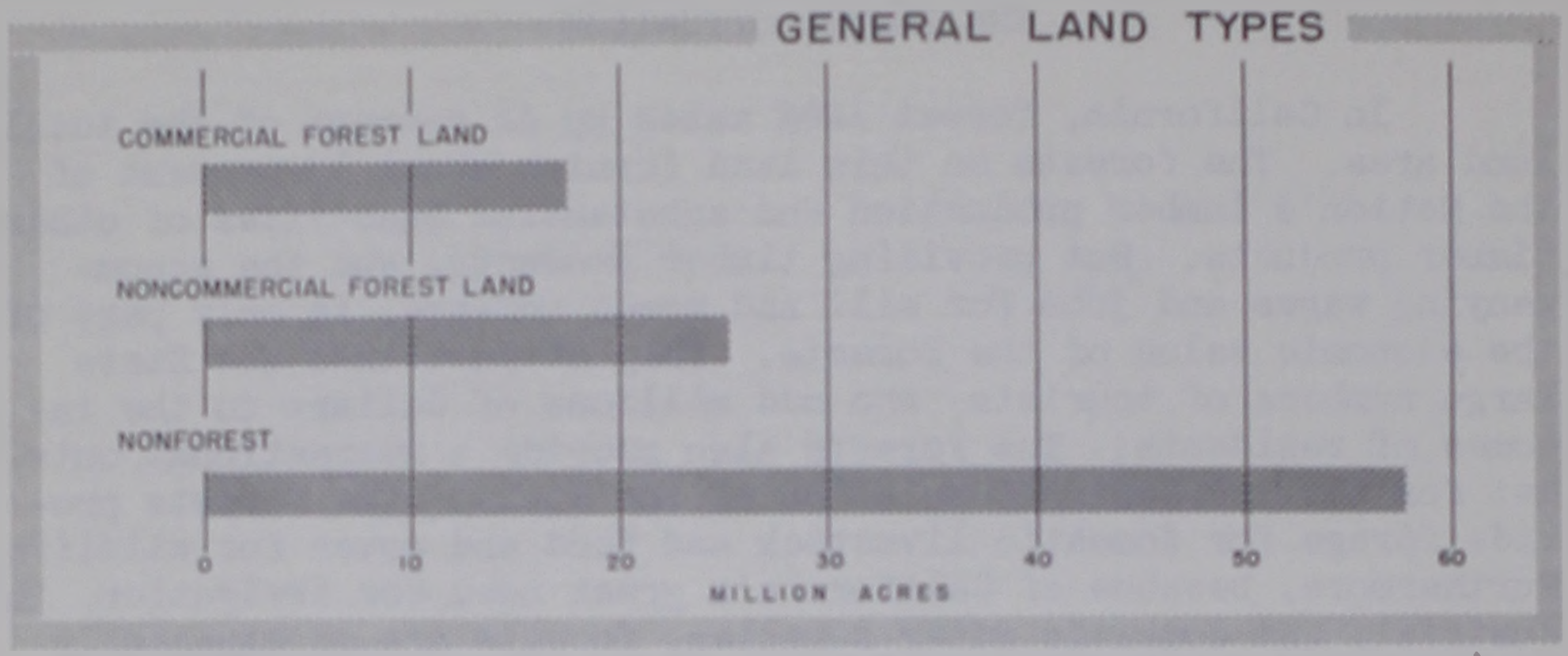
1/ For definition of terms used in this report see page 55.

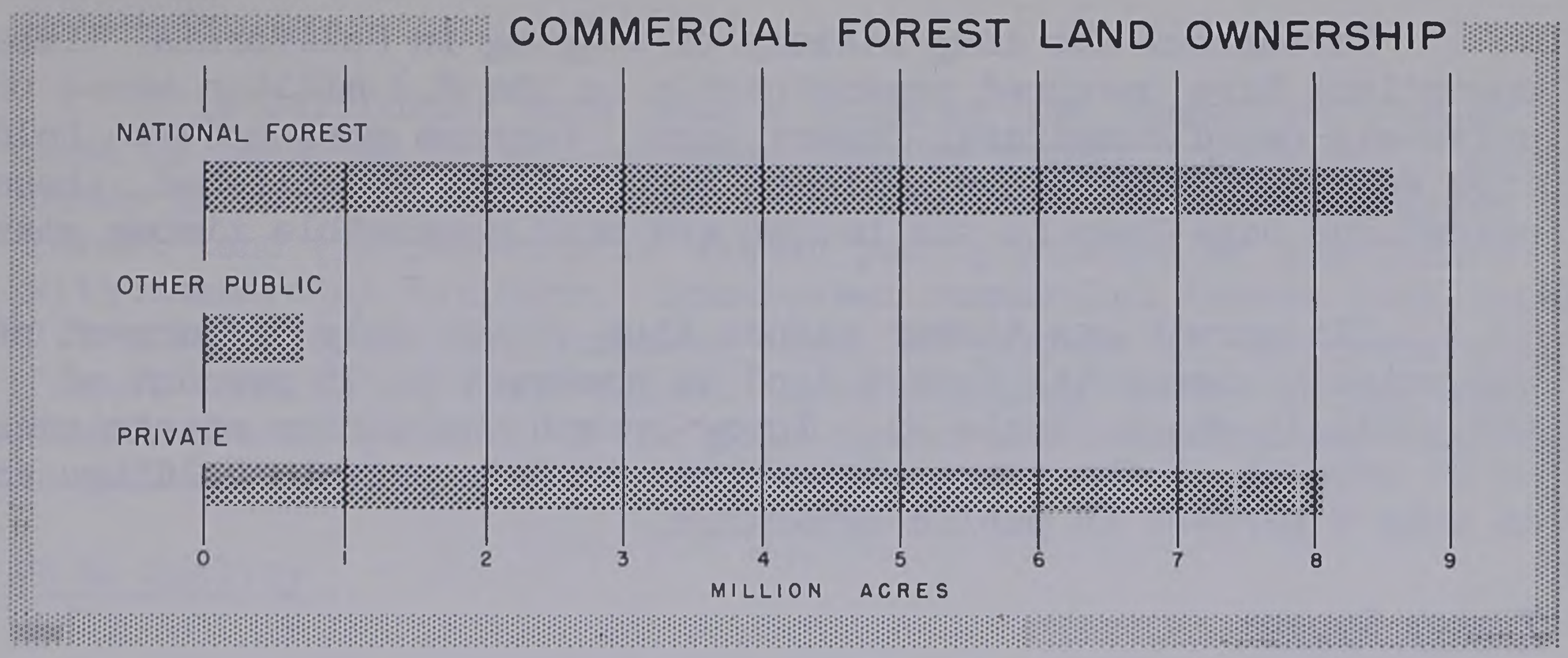



The other three-fifths of the forest land, or 25.2 million acres, is classified as noncommercial. About 24.0 million acres are incapable of producing usable crops of timber because of poor growing conditions. Most of this nonproductive land is occupied by chaparral, valuable for watershed protection and wildlife maintenance, and by a mixed cover of hardwoods and grass, valuable for grazing. The other 1.2 million acres of noncommercial forest land are productive forest areas withdrawn from timber utilization by statute, ordinance, or administrative order as parks and wilderness areas. The remainder of this summary deals with the commercial forest land.

## Ownership

A little more than half of the commercial forest land--9.3 million acres--is in public ownership (table 2). National forests constitute 93 percent of the publicly owned commercial forest land; the Bureau of Land Management, Indian Service, and State of California administer most of the remainder. Public agencies own about three-fifths of the commercial forest land in each of the major forest regions of the State except the Redwood--Douglas-fir subregion (table 13). In this subregion, only 31 percent of the commercial forest land is publicly owned.

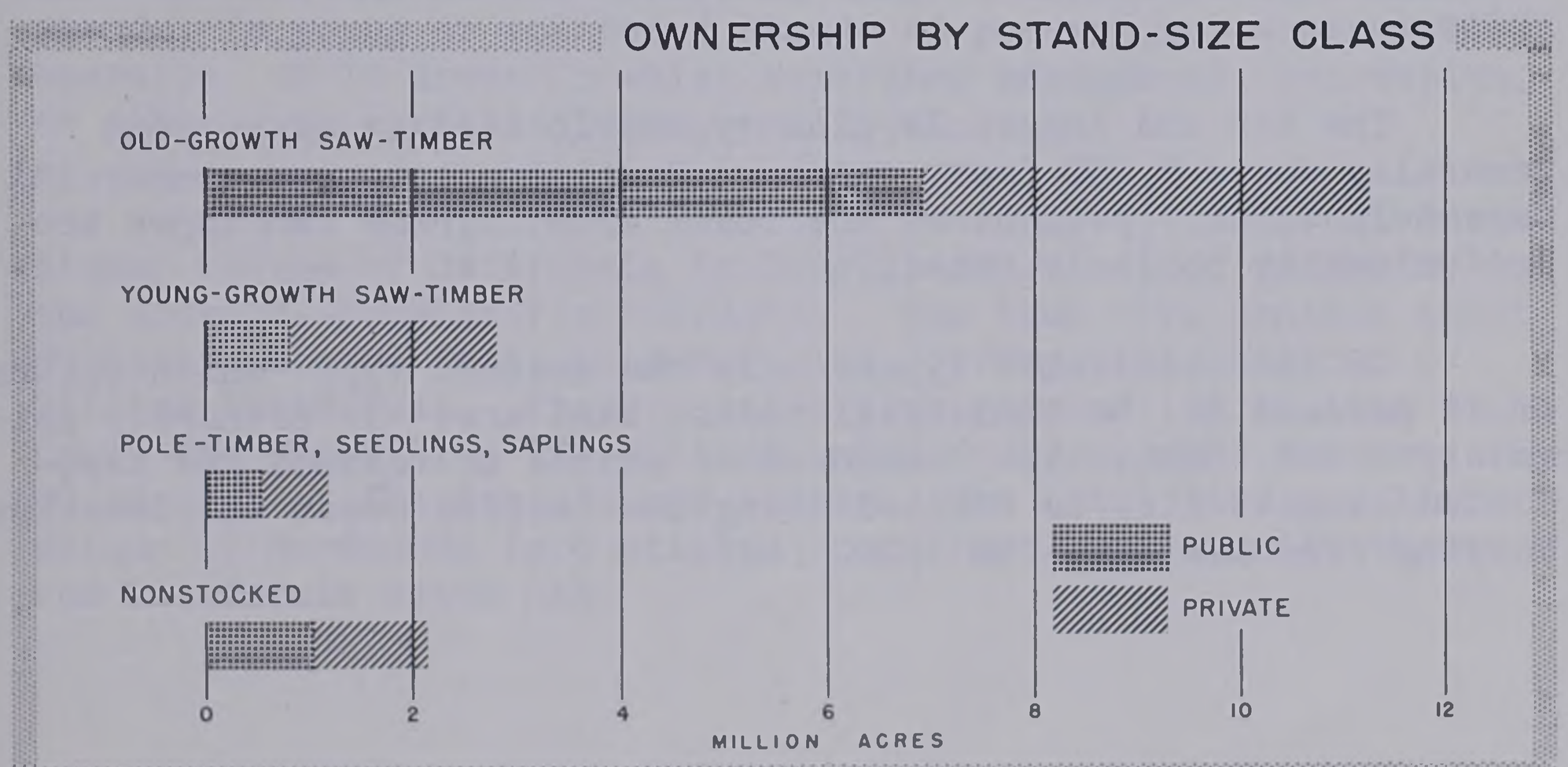
Privately owned commercial forest land totals 8.1 million acres. Eighty percent of this is in industrial and other nonfarm holdings. The other 20 percent is located on ranches and farms. Most of the large industrial holdings are located in the north and northwestern portions of the State.




## Stand-size Classes

Logging operations have been active in California for more than a century, yet 11.2 million acres, or almost two-thirds of the commercial forest land, is still occupied by old-growth saw-timber stands. These are stands with more than 50 percent of the net volume in old-growth saw-timber trees (table 2). Young-growth saw-timber stands occur on an additional 2.8 million acres. Thus, 81 percent of the commercial forest land supports saw-timber stands.

Pole-timber and seedling and sapling stands occupy 1.2 million acres, or 7 percent of the total. The remaining 2.1 million acres (12 percent of the total) contain only scattered trees or groups of commercial conifers. These nonstocked areas are now covered primarily with chaparral and poor quality hardwoods.



Throughout the long history of logging in California, timber operations have occurred predominantly on the 8.1 million acres of privately owned commercial forest land. Because most private holdings were acquired before national forests were established, these operations have been in the better and most accessible timber stands.

Old-growth saw-timber stands thus occupy only 54 percent of the private commercial forest land in contrast to 75 percent of the publicly owned (table 2). Young-growth saw-timber stands occur on 25 percent of the commercial forest land in private holdings and on only 9 percent in public ownership.

## Timber Types

Forty-five percent of the commercial forest land is occupied by mixed stands of ponderosa, Jeffrey, and sugar pines, Douglas-fir, true firs, and incense cedar in varying combinations and proportions (table 11). This pine--Douglas-fir--fir type is located at elevations of 4,000 to 7,000 feet, primarily in the Westside Sierra and Coast Range Pine subregions. About three-fifths of this mixed type is in public ownership (table 15).

The pine type, composed predominantly of ponderosa, Jeffrey, and sugar pine stands, covers 23 percent of the commercial forest land. Concentrated in the Sierra subregions and located principally at the 1,000 to 5,000 foot elevations, this type is about equally divided between public and private holdings.

The Douglas-fir type covers 14 percent of the timber producing area of the State and occurs chiefly in the Redwood--Douglas-fir subregion. Located at elevations of 50 to 6,000 feet, this type is also divided equally between public and private ownerships.

The fir and lodgepole pine types, located at elevations generally above 5,000 feet, occupy 1.2 million acres of commercial forest land, or 7 percent of the total area. These two types are predominantly publicly owned.

Of all the timber types, only the redwood type--which occurs on 11 percent of the commercial forest land area--is primarily privately owned. This type, composed of stands of redwood and associated Douglas-fir, is located along the Pacific Ocean at elevations varying from sea level to 3,000 feet.

## Stocking

In California more than a third of the commercial forest land is occupied by well-stocked conifer stands (table 17). Another third is medium-stocked. The remainder of the commercial forest land (31 percent) is either poorly stocked or nonstocked with commercial conifers. Nonstocked commercial forest land totals 2.1 million acres and composes about 12 percent of the commercial forest land in each subregion. Best stocking occurs on the saw-timber areas, poorest on the pole-timber and seedling and sapling areas.

## Site Quality

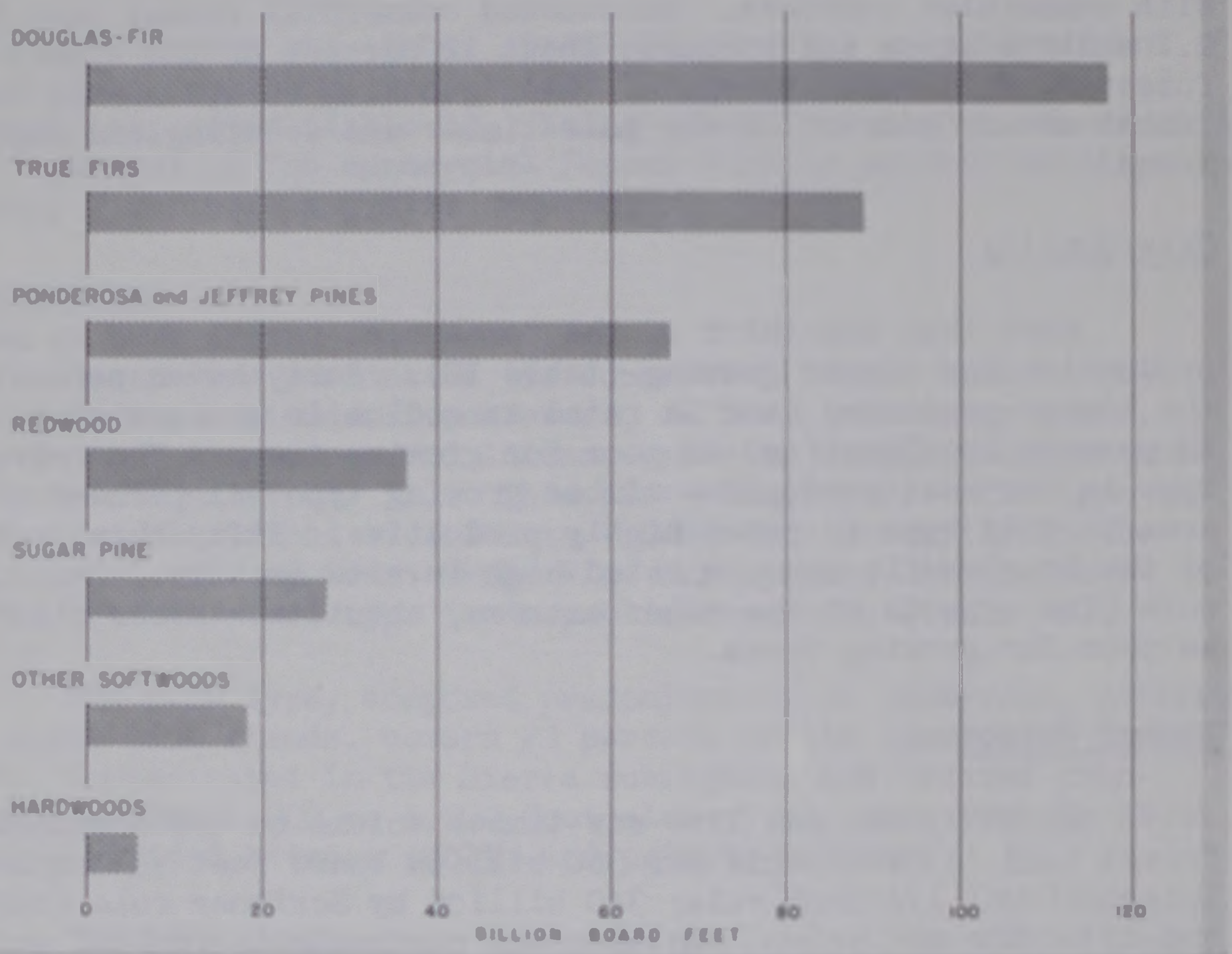
More than one-third of the commercial forest land is highly productive for timber growing (table 18). Forty-seven percent of the timber producing land is rated as medium in productivity. Only 18 percent is classified as poor for growing trees. The redwood type is the most productive timber growing type--81 percent of the area in this type is rated highly productive. Fifty-three percent of the Douglas-fir type is rated high in site quality. The lodge-pole pine type is at the other extreme, about two-thirds classified as poor for growing trees.

## Timber Volume

In 1953, the net live saw-timber volume on the commercial forest land in California was 360 billion board feet as measured by International 1/4-inch rule; 340 billion by Scribner rule (tables 6 and 19) The net volume includes all merchantable conifer and hardwood trees, 11.0 inches and larger in diameter, after allowance for cull and breakage and without consideration of current availability for utilization. Part of this volume is in inaccessible stands, in young or scattered stands at present not economically operable, or in areas in which watershed management, recreation, or other uses curtail timber operations.

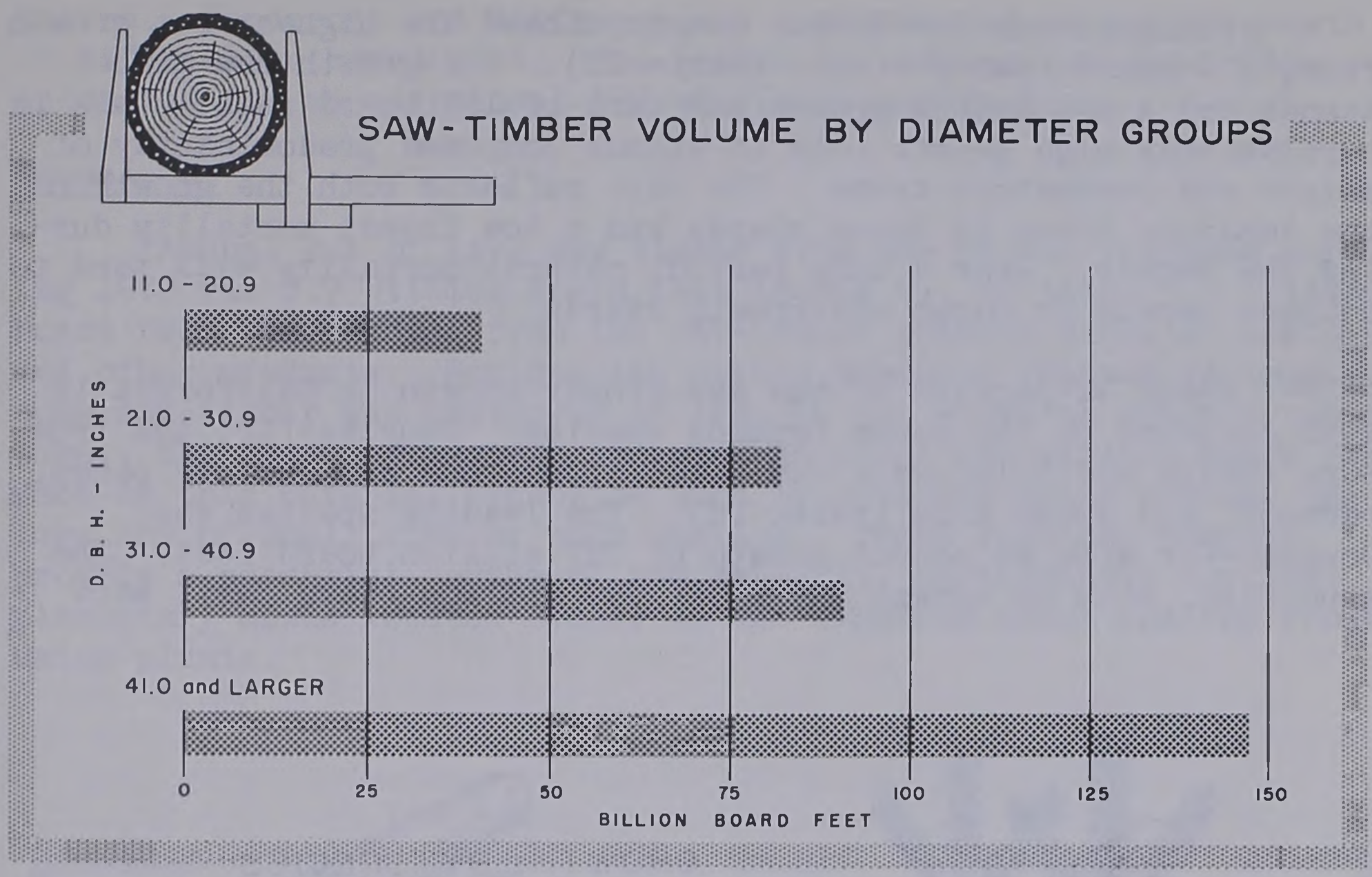
Almost one-third (117 billion board feet) of the live saw-timber volume of California is Douglas-fir, located primarily in the Redwood--Douglas-fir subregion. The true firs contain about 89 billion board feet; ponderosa and Jeffrey pine, another 67 billion board feet. These species plus redwood (36 billion board feet) and sugar pine (27 billion board feet) account for more than 90 percent of the State's saw timber. The total live saw-timber volume of hardwoods is 6 billion board feet, principally tanoak and California black oak.

## SAW-TIMBER VOLUME BY SPECIES




Forty-one percent of the live saw-timber volume in California is in trees 41.0 inches and larger in diameter (table 7). Two species, redwood and sugar pine, have more than half of their board-foot volume in this largest diameter class. Only 11 percent of the total volume of all species is in the smallest diameter class, 11.0 to 20.9 inches. Forty-two percent of the board-foot volume in hardwoods is in this smallest class.

Eighty-five percent (306 billion board feet) of the State saw-timber volume is in old-growth saw-timber stands (table 4). These stands contain a large volume in mature and overmature timber, which is ready for harvesting to make lumber, plywood, and other high-quality timber products. But much of this volume, particularly on the national forests, is still in inaccessible timber stands.




Fifty-four percent (194 billion board feet) of the live saw-timber volume in California is on publicly owned commercial forest land (tables 5 and 22). National forests contain 92 percent of this volume, primarily in old-growth saw-timber stands. The other publicly owned saw-timber volume, 15 billion board feet, is chiefly on Indian Service, Bureau of Land Management, and State holdings. Minor volumes occur on other Federal and county and municipal holdings.

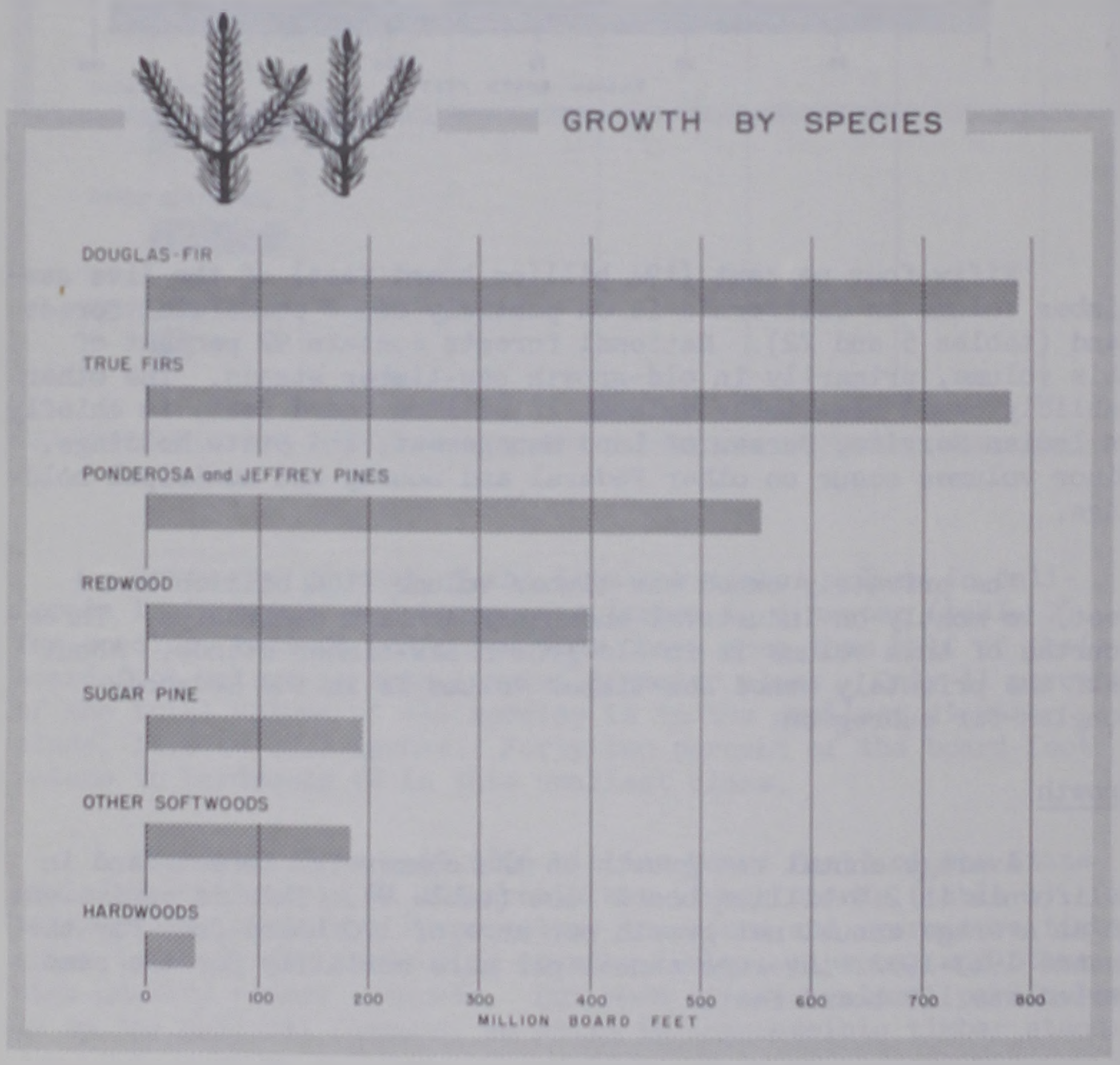
The privately owned saw-timber volume (166 billion board feet) is mostly on industrial and other nonfarm ownerships. Three-fourths of this volume is in old-growth saw-timber stands. About half the privately owned saw-timber volume is in the Redwood--Douglas-fir subregion.

Growth

Average annual net growth on the commercial forest land in California is 2.9 billion board feet (table 9). This is equivalent to an average annual net growth per acre of 170 board feet for the decade 1943-1952. Average annual per acre mortality for the same period was 107 board feet.

Young-growth saw-timber stands showed the highest net growth rate, 322 board feet per acre (table 26). Old-growth saw-timber stands had a net annual growth per acre of 157 board feet. This is a relatively high growth rate in stands composed predominantly of mature and overmature trees. The rate reflects both the growth of the immature trees in these stands and a low insect mortality during the decade. Over a long period, natural mortality will tend to balance growth in uncut old-growth stands.

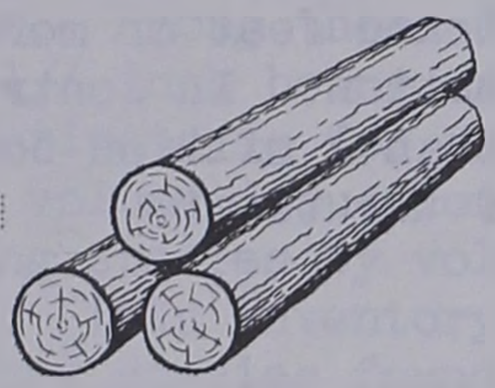
About 92 percent of the saw-timber growth in California in 1952 occurred on the seven leading species: Douglas-fir, the true firs (white and California red firs), ponderosa and Jeffrey pines, redwood, and sugar pine (table 28). The leading species was Douglas-fir with an annual growth of 787 million board feet. The true firs, with an annual growth of 780 million board feet, were

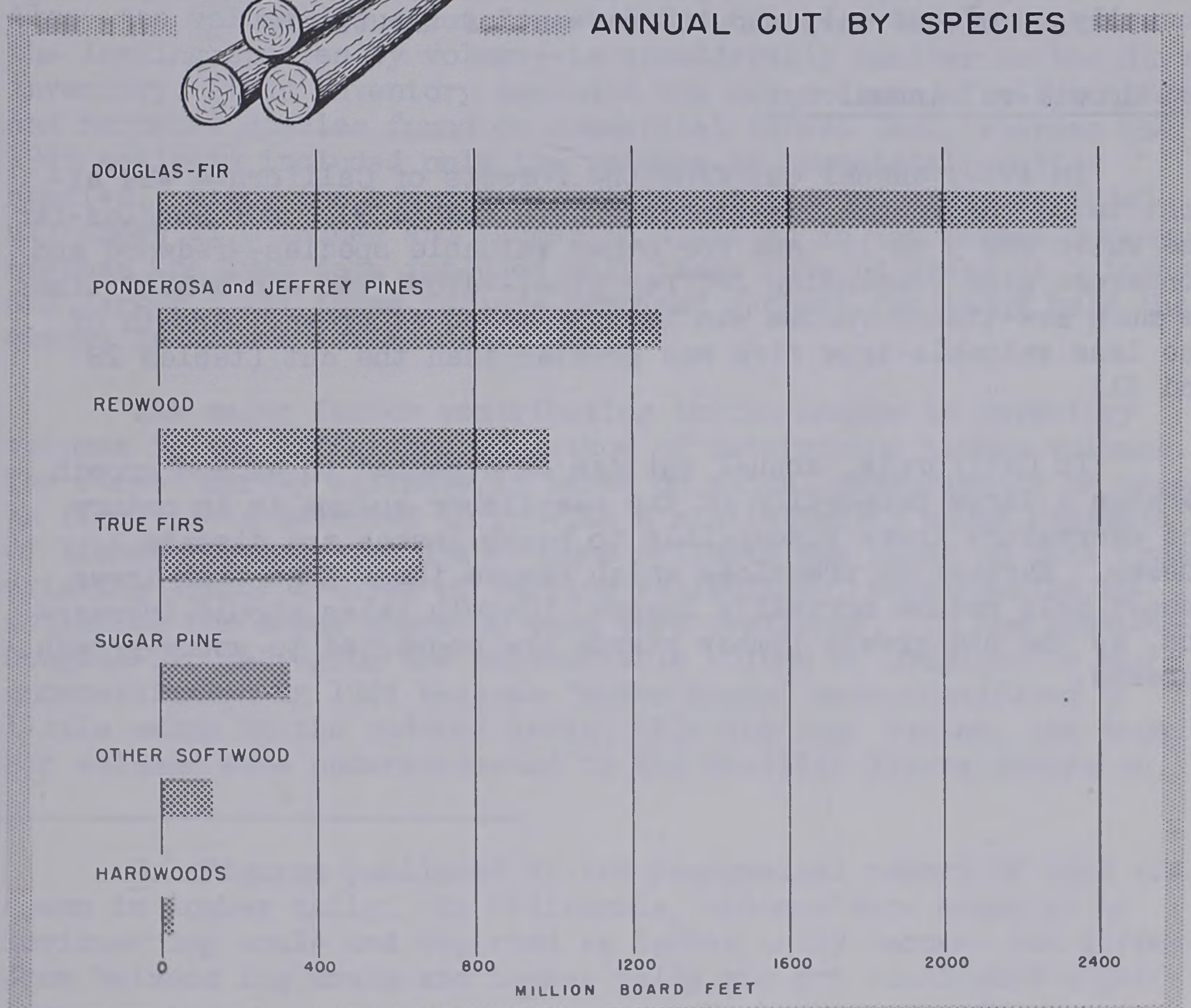


second. Ponderosa and Jeffrey pines together had an annual growth of 553 million board feet. The growth in redwood and sugar pine accounted for an additional 592 million board feet.

## Annual Cut

Annual cut of live saw timber from the forest resource during 1952 was 5.7 billion board feet (table 9). Of this, 5.3 billion board feet was removed from the saw-timber growing stock as sawlogs and other products. Besides the usable products removed in logging, some saw timber was destroyed or left in the woods as rough or short logs. This logging residue amounted to about 460 million board feet. Much of this material cannot be used by existing mills because the logs are of small size or poor quality. These logs do, however, provide a potential source of raw material, particularly for supplementary mills located closer to the timbered areas and for fiber-using plants.





Lumber is the principal product from the forests of California. Sawlogs for lumber production accounted for 91 percent of the timber products output in 1952, plywood 5 percent, and other products 4 percent (table 10). Lumber production has more than doubled since World War II (table 34).

The increase in log and bolt production for plywood and pulpwood has been even more spectacular over the same period (table 35). Plywood log production increased from about 15 million board feet in 1946 to 253 million in 1952; pulpwood production from 2 million board feet to 100 million.

Production of poles and piling also showed a large increase during the period 1946 through 1952. Shingle and sawed shake and cooperage production decreased over the same period.

A special survey of lumber manufacturing in 1951 showed that 796 sawmills were active in California (table 33). The 13 largest mills, with annual outputs of 50 million board feet or more, produced 19 percent of the total lumber production. In contrast, the 279 smallest mills, with outputs of less than 1 million board feet annually, produced only about 2 percent of the total.

Net Growth vs. Annual Cut

In 1952, annual cut from the forests of California was almost twice the annual saw-timber growth (table 9). For Douglas-fir the ratio was 3 to 1. And for other valuable species--redwood and ponderosa pine (including Jeffrey pine)--about two and a half times as much saw-timber volume was being removed as grown. Growth of the less valuable true firs was greater than the cut (tables 28 and 31).

In California, annual cut can be expected to exceed growth because a large proportion of the saw-timber volume is in mature and overmature trees susceptible to heavy insect and disease losses. Harvesting practices which remove these high risk trees should help reduce mortality losses. Growth rates should increase too, as the old-growth timber stands are converted to young-growth forests.

## Comparison with Reappraisal Report of 1945

These new estimates of forest area and timber volume in California are larger than those published by the Forest Service in the Reappraisal Report of 1945. Some of the differences are attributable to changes in timber specifications and some to use of better survey techniques.

Commercial forest land as estimated by the Forest Survey is 912 thousand acres greater than the 1945 estimate. This 6 percent difference is due to a more intensive aerial photo classification resulting in a greater accuracy of area determination for the Survey.

Saw-timber volume on commercial forest land, estimated to be 360 billion board feet (International 1/4-inch log rule) by the Forest Survey, was appraised at 228 billion board feet in 1945. The 132 billion-board-feet difference is the consequence of a number of factors. Among these is the difference in log scale, International 1/4-inch being used in the Survey and Scribner in 1945.2/ The new estimate is for a greater commercial forest land area. Also, the volume deduction for cull and breakage in Douglas-fir--the leading species by volume--is considerably smaller in the Survey inventory. This inventory included the net volumes of all conifer and hardwood species found on commercial forest land, whereas the 1945 estimate included only the volumes of commercial conifer species. Also, the board-foot volumes of redwood trees included all trees 11.0 inches and larger in diameter in the Forest Survey, whereas the 1945 data included only those redwood trees 24.0 inches and larger. All these factors combined account for about half the change in volume estimates.

The major factor contributing to the change in inventory volumes is the difference in method of determining timber volumes. The Forest Survey estimate is based on actual measurements of trees on field plots selected to provide a statistically sound estimate of timber volume. The 1945 volume estimate was based on data from existing timber cruises of varying reliability, supplemented by estimates for areas where no data were available. In the Redwood--Douglas-fir subregion the merchantable volume of Douglas-fir was underestimated in 1945 because "white woods" were considered of little value in the redwood areas. For the same reason, the true fir volumes were underestimated in the Westside Sierra subregion.

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2/ Figures published in the Reappraisal report of 1945 are shown in lumber tally. In California, volumes were computed by Scribner log scale and reported as lumber tally because the difference between log scale and lumber tally was not considered significant.

## STANDARD FOREST SURVEY TABLES

The first ten tables have been standardized as to format and contents so that forest statistics for California can be compared or combined with similar statistics for other states.

Table 1.- Land area, by major classes of land, California, 1953

| Class of land | Area |
|---|---|
| | Thousand acres |
| Forest | |
| Commercial | 17,317 |
| Noncommercial | |
| Productive--reserved | 1,202 |
| Unproductive | 24,022 |
| Total | 42,541 |
| Nonforest[1]/ | 57,773 |
| Total, all classes | 100,314 |

1/ Includes 83 thousand acres of water according to Survey standards of area classification but defined by the Bureau of Census as land.

Table 2.- Commercial forest land area, by ownership and stand-size classes, California, 1953

| Ownership class | Total | Saw-timber stands | | | Pole timber stands | Seedling and sapling stands | Non-stocked and other areas[1/] |
|---|---|---|---|---|---|---|---|
| | | Total | Old growth | Young growth | | | |
| | Thousand acres | | | | | | |
| Federally owned or managed | | | | | | | |
| National forest | 8,573 | 7,198 | 6,500 | 698 | 448 | 22 | 905 |
| Indian | 133 | 107 | 95 | 12 | 9 | (2/) | 17 |
| Bureau of Land Management | 324 | 231 | 168 | 63 | 28 | 1 | 64 |
| Other | 40 | 29 | 20 | 9 | 1 | (2/) | 10 |
| Total | 9,070 | 7,565 | 6,783 | 782 | 486 | 23 | 996 |
| State | 186 | 147 | 130 | 17 | 15 | (2/) | 24 |
| County and municipal | 8 | 6 | 6 | (2/) | (2/) | - | 2 |
| Total | 194 | 153 | 136 | 17 | 15 | (2/) | 26 |
| Private | | | | | | | |
| Farm | 1,586 | 1,245 | 851 | 394 | 122 | 4 | 215 |
| Industrial and other | 6,467 | 5,075 | 3,470 | 1,605 | 499 | 17 | 876 |
| Total | 8,053 | 6,320 | 4,321 | 1,999 | 621 | 21 | 1,091 |
| All ownerships | 17,317 | 14,038 | 11,240 | 2,798 | 1,122 | 44 | 2,113 |

1/ Includes areas not classified elsewhere.
2/ Less than 500 acres.

Table 3.- Area of commercial forest land, by major forest types,1/ California, 1953

| Forest type | Thousand acres |
|---|---|
| Douglas-fir | 4,378 |
| Hemlock--Sitka spruce | 6 |
| Redwood | 1,588 |
| Ponderosa pine | 6,057 |
| White pine (Sugar pine) | 2,255 |
| Lodgepole pine | 300 |
| Spruce--fir | 2,733 |
| All types | 17,317 |

1/ The forest types presented in this table conform with standard types defined by national Forest Survey (see definitions on page 56). These types differ from the forest types in general use by industry and forestry agencies in California. Data on the occurrence of these local California types are shown in tables 11, 15, 16, and 18.

Table 4.- Net volume of live saw timber and growing stock on commercial forest land, by stand-size class, California, 1953

| Stand-size class | Saw timber | Growing stock |
|---|---|---|
| | Million board feet[1]/ | Million cubic feet |
| Saw-timber stands | | |
| Old growth | 305,691 | 54,977 |
| Young growth | 45,786 | 9,284 |
| Total | 351,477 | 64,261 |
| Pole-timber stands | 4,203 | 1,047 |
| Seedling and sapling stands | 105 | 28 |
| Nonstocked and areas not elsewhere classified | 4,216 | 1,075 |
| Total | [2]/360,001 | 66,411 |

1/ Log scale, International 1/4-inch rule. All board foot volumes in the remaining tables are by International 1/4-inch rule unless otherwise specified.

2/ Gross saw-timber is estimated to be 425,815 million board feet. Deductions of 48,781 million board feet for cull and 17,033 million board feet for felling breakage have been made to obtain the net volume estimate shown.

Table 5.- Net volume of live saw timber and growing stock on commercial forest land, by ownership class, California, 1953

| Ownership class | Saw timber | Growing stock |
|---|---|---|
| | Million board feet | Million cubic feet |
| Federally owned or managed | | |
| National forest | 178,913 | 32,656 |
| Indian | 3,969 | 728 |
| Bureau of Land Management | 5,817 | 1,117 |
| Other | 370 | 75 |
| Total | 189,069 | 34,576 |
| State | 4,547 | 835 |
| County and municipal | 195 | 36 |
| Total | 4,742 | 871 |
| Private | | |
| Farm | 31,379 | 5,857 |
| Industrial and other | 134,811 | 25,107 |
| Total | 166,190 | 30,964 |
| All ownerships | 360,001 | 66,411 |

Table 6.- Net volume of live saw timber and growing stock on commercial forest land, by species, California, 1953

| Species | Saw timber | Growing stock |
|---|---|---|
| | Million board feet | Million cubic feet |
| Softwoods | | |
| Douglas-fir | 116,912 | 20,758 |
| Ponderosa and Jeffrey pines | 66,741 | 11,935 |
| White fir | 1/ 57,214 | 10,559 |
| California red fir | 31,510 | 5,540 |
| Western hemlock | 471 | 83 |
| Sugar pine | 27,384 | 4,432 |
| Western white pine | 2,131 | 366 |
| Redwood | 36,124 | 6,360 |
| Incense-cedar | 9,727 | 2,057 |
| Lodgepole pine | 3,807 | 1,092 |
| Other | 2/ 2,003 | 482 |
| Total | 354,024 | 63,664 |
| Hardwoods | | |
| Aspen | 37 | 36 |
| Red alder 3/ | 166 | 57 |
| Tanoak | 2,036 | 836 |
| California black oak | 1,946 | 831 |
| Other | 1,792 | 987 |
| Total | 5,977 | 2,747 |
| All species | 360,001 | 66,411 |

1/ Includes 1,281 million bd. ft. of grand fir.
2/ Includes 170 million bd. ft. of Sitka spruce and 2 million bd. ft. of western redcedar.
3/ Includes both red and white alder.

Table 7.- Net volume of live saw timber on commercial forest land, by diameter class groups and species, California, 1953

| Species | Diameter class groups | | | | Total |
|---|---|---|---|---|---|
| | 11.0-20.9 inches | 21.0-30.9 inches | 31.0-40.9 inches | 41.0 inches and larger | |
| | Million board feet | | | | |
| Softwoods | | | | | |
| Douglas-fir | 9,171 | 23,033 | 28,750 | 55,958 | 116,912 |
| Ponderosa and Jeffrey pines | 7,533 | 17,136 | 21,184 | 20,888 | 66,741 |
| Sugar pine | 1,621 | 4,072 | 5,788 | 15,903 | 27,384 |
| Western white pine | 335 | 597 | 687 | 512 | 2,131 |
| Redwood | 3,358 | 4,490 | 4,438 | 23,838 | 36,124 |
| White fir | 7,586 | 16,261 | 16,168 | 17,199 | 57,214 |
| California red fir | 3,888 | 9,194 | 8,765 | 9,663 | 31,510 |
| Other | 4,393 | 4,733 | 3,770 | 3,112 | 16,008 |
| Total | 37,885 | 79,516 | 89,550 | 147,073 | 354,024 |
| Hardwoods | | | | | |
| Tanoak | 855 | 765 | 329 | 87 | 2,036 |
| California black oak | 600 | 829 | 452 | 65 | 1,946 |
| Other | 1,044 | 734 | 196 | 21 | 1,995 |
| Total | 2,499 | 2,328 | 977 | 173 | 5,977 |
| All species | 40,384 | 81,844 | 90,527 | 147,246 | 360,001 |

Table 8.- Net volume of all timber on commercial forest land, by class of material and species group, California, 1953

| Class of material | Total | Softwoods | Hardwoods |
|---|---|---|---|
| | Million cubic feet | Million cubic feet | Million cubic feet |
| Growing stock | | | |
| Saw-timber trees | | | |
| Sawlog portion | 53,668 | 52,456 | 1,212 |
| Upper stem portion | 7,788 | 7,788 | - |
| Total | 61,456 | 60,244 | 1,212 |
| Pole-timber trees | 4,955 | 3,420 | 1,535 |
| Total growing stock | 66,411 | 63,664 | 2,747 |
| Other material | | | |
| Sound cull trees | 375 | 57 | 318 |
| Rotten cull trees | 935 | 820 | 115 |
| Hardwood limbs | 1,581 | - | 1,581 |
| Salvable dead trees | 329 | 329 | - |
| Total other material | 3,220 | 1,206 | 2,014 |
| Total, all timber | 69,631 | 64,870 | 4,761 |

Table 9.- Net annual growth, annual mortality, and annual cut on live saw timber and growing stock on commercial forest land, by species groups, California, 1952

| Item | Saw timber | | | Growing stock | | |
|---|---|---|---|---|---|---|
| | Total | Soft-woods | Hard-woods | Total | Soft-woods | Hard-woods |
| | Million board feet | | | Million cubic feet | | |
| Net annual growth | 2,939 | 2,895 | 44 | 584 | 539 | 45 |
| Annual mortality | 1,865 | 1,811 | 54 | 359 | 336 | 23 |
| Annual cut | | | | | | |
| Timber products | 5,269 | 5,269 | (1/) | 766 | 766 | (2/) |
| Logging residues | 462 | 442 | 20 | 167 | 156 | 11 |
| Total | 5,731 | 5,711 | 20 | 933 | 922 | 11 |

1/ Less than 0.5 million board feet.
2/ Less than 0.5 million cubic feet.

Table 10.- Output of timber products and annual cut of live saw timber and growing stock, California, 1952

| Product | Output of timber products | | | | | Annual cut of saw timber | | | Annual cut of growing stock | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Volume in standard units | | Roundwood volume | | | | | | | | |
| | Std. units | Number | Total | Soft-woods | Hard-woods | Total | Soft-woods | Hard-woods | Total | Soft-woods | Hard-woods |
| | | | ---- Thousand cu. ft.---- | | | ----- Thousand bd. ft. ----- | | | ---- Thousand cu. ft. ---- | | |
| Sawlogs | M bd.ft.1/ | 5,045,198 | 735,452 | 735,362 | 90 | 5,281,982 | 5,266,878 | 15,104 | 862,611 | 853,295 | 9,316 |
| Veneer logs | M bd.ft.1/ | 280,830 | 36,571 | 36,571 | - | 332,181 | 331,659 | 522 | 48,194 | 47,926 | 268 |
| Cooperage logs | M bd.ft.1/ | 4,652 | 607 | 607 | - | 5,726 | 5,722 | 4 | 828 | 827 | 1 |
| Pulpwood | Std. Cds.2/ | 3/ 199,674 | 17,971 | 17,966 | 5 | 60,491 | 60,151 | 340 | 11,419 | 11,156 | 263 |
| Fuelwood | Std. Cds.2/ | 4/ 55,555 | 4,660 | 1,940 | 2,720 | 3,188 | 3,000 | 188 | 600 | 540 | 60 |
| Piling | M lin. ft. | 1,116 | 743 | 727 | 16 | 3,713 | 3,702 | 11 | 828 | 819 | 9 |
| Poles | M pcs. | 45 | 1,018 | 1,018 | - | 4,697 | 4,685 | 12 | 1,154 | 1,144 | 10 |
| Posts | M pcs. | 3,400 | 4,800 | 3,400 | 1,400 | 18,317 | 18,224 | 93 | 3,170 | 3,108 | 62 |
| Hewn ties | M pcs. | 8 | 24 | 24 | - | 249 | 248 | 1 | 28 | 28 | (5/) |
| Mine timbers | M cu. ft. | 455 | 455 | 455 | - | 1,517 | 1,516 | 1 | 448 | 445 | 3 |
| Miscellaneous | | | | | | | | | | | |
| Shingle and shake bolts | M cu. ft. | 716 | 716 | 716 | - | 4,658 | 4,633 | 25 | 656 | 642 | 14 |
| Misc. split products | M cu. ft. | 1,480 | 1,480 | 1,480 | - | 10,324 | 10,269 | 55 | 1,675 | 1,641 | 34 |
| Other6/ | M cu. ft. | 648 | 648 | 88 | 560 | 3,732 | 70 | 3,662 | 1,145 | 38 | 1,107 |
| Total Misc. | M cu. ft. | 7/ 2,844 | 2,844 | 2,284 | 560 | 18,714 | 14,972 | 3,742 | 3,476 | 2,321 | 1,155 |
| Total all products | | -- | 805,145 | 800,354 | 4,791 | 5,730,775 | 5,710,757 | 20,018 | 932,756 | 921,609 | 11,147 |

1/ International 1/4" rule.
2/ Rough wood basis.
3/ Not including 7,970 M cu. ft. of wood from mill residues used for pulp and hardboard.
4/ Not including 122,477 M cu. ft. of wood from mill residues used for domestic and industrial fuel.
5/ Less than 500 cubic feet.
6/ Includes chemical wood, shook bolts, small poles, and wood residue from tanbark operations.
7/ Not including 7,927 M cu. ft. of wood from mill residues used for pickets, lath, particle board, etc.

Table 11.- Total land area in the forest subregions by cover type and use, California, 1953

| Cover type1/ and use | California | Subregions | | | | |
|---|---|---|---|---|---|---|
| | | Eastside Sierra | Westside Sierra | Coast Range Pine | Redwood--Douglas-fir | Southern California |
| | Thousand acres | | | | | |
| COMMERCIAL FOREST LAND | | | | | | |
| Pine | 3,928 | 1,833 | 1,715 | 213 | 10 | 157 |
| Redwood | 1,929 | - | - | - | 1,918 | 11 |
| Douglas-fir | 2,481 | - | - | 476 | 2,005 | - |
| Fir | 990 | 348 | 505 | 90 | 39 | 8 |
| Pine--Douglas-fir--Fir | 7,779 | 1,641 | 3,390 | 2,423 | 266 | 55 |
| Lodgepole pine | 214 | 97 | 117 | - | - | - |
| Total commercial | 17,317 | 3,919 | 5,727 | 3,202 | 4,238 | 231 |
| NONCOMMERCIAL FOREST LAND | | | | | | |
| Productive-reserved | | | | | | |
| Pine | 143 | 12 | 125 | - | - | 6 |
| Redwood | 60 | - | 4 | - | 53 | 3 |
| Douglas-fir | 75 | - | - | 9 | 66 | - |
| Fir | 264 | 47 | 152 | 40 | 24 | 1 |
| Pine--Douglas-fir--Fir | 568 | 36 | 295 | 201 | 43 | 3 |
| Lodgepole pine | 92 | 18 | 74 | - | - | - |
| Total | 1,202 | 113 | 640 | 250 | 186 | 13 |
| Unproductive | | | | | | |
| Coniferous woodland | 6,292 | 2,409 | 1,648 | 485 | 242 | 1,508 |
| Hardwoods (woodland) | 2,994 | 104 | 1,070 | 972 | 431 | 417 |
| Woodland-grass | 6,273 | 62 | 2,550 | 1,303 | 353 | 2,003 |
| Chaparral | 8,463 | 470 | 1,370 | 1,116 | 356 | 5,151 |
| Total | 24,022 | 3,045 | 6,638 | 3,478 | 1,382 | 9,479 |
| Total noncommercial | 25,224 | 3,158 | 7,278 | 3,728 | 1,568 | 9,492 |
| Total forest land | 42,541 | 7,077 | 13,005 | 6,930 | 5,806 | 9,723 |
| NONFOREST LAND | | | | | | |
| Grass | 10,685 | 463 | 3,404 | 754 | 889 | 5,175 |
| Coastal sagebrush | 2,332 | - | - | 1 | 45 | 2,286 |
| Great Basin sagebrush | 4,720 | 4,200 | 177 | - | - | 343 |
| Cultivated, urban and industrial | 13,429 | 517 | 4,481 | 2,014 | 736 | 5,677 |
| Barren | 1,848 | 603 | 994 | 73 | 44 | 134 |
| Marsh | 213 | 28 | 15 | 85 | 35 | 50 |
| Water2/ | 84 | 5 | 39 | 7 | 23 | 10 |
| Desert | 24,466 | 5,134 | 16 | - | - | 19,296 |
| Total nonforest land | 57,773 | 10,970 | 9,126 | 2,934 | 1,772 | 32,971 |
| All land | 100,314 | 18,047 | 22,131 | 9,864 | 7,578 | 42,694 |

1/ Forest types are based on California system of type classification. See definitions, page 37.
2/ Water according to survey standards of area classification but defined by the Bureau of Census as land.

Table 12.- County area by major classes of land and by ownership class of commercial forest land, California, 1953

| County | Total land area[1] | Forest land | | | | Non-commercial | Non-forest |
|---|---|---|---|---|---|---|---|
| | | Total | Commercial | | | | |
| | | | Total | Public | Private | | |
| | Thousand acres | | | | | | |
| Alameda | 469 | 83 | - | - | - | 83 | 386 |
| Alpine | 463 | 344 | 104 | 86 | 18 | 240 | 119 |
| Amador | 380 | 303 | 139 | 44 | 95 | 164 | 77 |
| Butte | 1,066 | 608 | 356 | 117 | 239 | 252 | 458 |
| Calaveras | 658 | 573 | 243 | 76 | 167 | 330 | 85 |
| Colusa | 738 | 276 | 27 | 26 | 1 | 249 | 462 |
| Contra Costa | 470 | 59 | - | - | - | 59 | 411 |
| Del Norte | 642 | 615 | 451 | 299 | 152 | 164 | 27 |
| Eldorado | 1,104 | 981 | 674 | 315 | 359 | 307 | 123 |
| Fresno | 3,831 | 1,467 | 426 | 386 | 40 | 1,041 | 2,364 |
| Glenn | 843 | 363 | 113 | 87 | 26 | 250 | 480 |
| Humboldt | 2,287 | 1,946 | 1,740 | 446 | 1,294 | 206 | 341 |
| Imperial | 2,742 | 2 | - | - | - | 2 | 2,740 |
| Inyo | 6,458 | 666 | 7 | 5 | 2 | 659 | 5,792 |
| Kern | 5,229 | 1,161 | 106 | 86 | 20 | 1,055 | 4,068 |
| Kings | 893 | 15 | - | - | - | 15 | 878 |
| Lake | 804 | 709 | 175 | 105 | 70 | 534 | 95 |
| Lassen | 2,911 | 1,297 | 829 | 452 | 377 | 468 | 1,614 |
| Los Angeles | 2,605 | 1,096 | 14 | 13 | 1 | 1,082 | 1,509 |
| Madera | 1,375 | 707 | 264 | 231 | 33 | 443 | 668 |
| Marin | 333 | 119 | 31 | - | 31 | 88 | 214 |
| Mariposa | 931 | 748 | 168 | 105 | 63 | 580 | 183 |
| Mendocino | 2,246 | 1,914 | 1,305 | 249 | 1,056 | 609 | 332 |
| Merced | 1,269 | 80 | - | - | - | 80 | 1,189 |
| Modoc | 2,620 | 1,297 | 675 | 458 | 217 | 622 | 1,323 |
| Mono | 1,938 | 693 | 122 | 102 | 20 | 571 | 1,245 |
| Monterey | 2,127 | 1,128 | 16 | 5 | 11 | 1,112 | 999 |
| Napa | 505 | 356 | 39 | 1 | 38 | 317 | 149 |
| Nevada | 627 | 542 | 361 | 130 | 231 | 181 | 85 |
| Orange | 500 | 74 | - | - | - | 74 | 426 |
| Placer | 916 | 686 | 433 | 202 | 231 | 253 | 230 |
| Plumas | 1,645 | 1,421 | 1,228 | 911 | 317 | 193 | 224 |
| Riverside | 4,595 | 834 | 23 | 12 | 11 | 811 | 3,761 |
| Sacramento | 630 | 44 | - | - | - | 44 | 586 |
| San Benito | 893 | 416 | 1 | - | 1 | 415 | 477 |
| San Bernardino | 12,884 | 899 | 89 | 59 | 30 | 810 | 11,985 |
| San Diego | 2,725 | 1,225 | 25 | 11 | 14 | 1,200 | 1,500 |
| San Francisco | 29 | (2/) | - | - | - | (2/) | 29 |
| San Joaquin | 902 | 43 | - | - | - | 43 | 859 |
| San Luis Obispo | 2,129 | 806 | 1 | (2/) | 1 | 805 | 1,323 |
| San Mateo | 291 | 127 | 59 | 5 | 54 | 68 | 164 |
| Santa Barbara | 1,757 | 988 | 1 | 1 | - | 987 | 769 |
| Santa Clara | 835 | 423 | 25 | 1 | 24 | 398 | 412 |
| Santa Cruz | 281 | 190 | 125 | (2/) | 125 | 65 | 91 |
| Shasta | 2,432 | 2,193 | 1,263 | 532 | 731 | 930 | 239 |
| Sierra | 613 | 515 | 393 | 301 | 92 | 122 | 98 |
| Siskiyou | 4,040 | 3,370 | 2,323 | 1,605 | 718 | 1,047 | 670 |
| Solano | 529 | 53 | - | - | - | 53 | 476 |
| Sonoma | 1,011 | 553 | 296 | 4 | 292 | 257 | 458 |
| Stanislaus | 964 | 186 | - | - | - | 186 | 778 |
| Sutter | 388 | 27 | - | - | - | 27 | 361 |
| Tehama | 1,903 | 1,378 | 436 | 206 | 230 | 942 | 525 |
| Trinity | 2,042 | 1,959 | 1,357 | 1,002 | 355 | 602 | 83 |
| Tulare | 3,101 | 1,750 | 219 | 201 | 18 | 1,531 | 1,351 |
| Tuolumne | 1,456 | 1,145 | 484 | 308 | 176 | 661 | 311 |
| Ventura | 1,189 | 751 | 35 | 34 | 1 | 716 | 438 |
| Yolo | 662 | 138 | - | - | - | 138 | 524 |
| Yuba | 408 | 199 | 116 | 45 | 71 | 83 | 209 |
| All counties | 100,314 | 42,541 | 17,317 | 9,264 | 8,053 | 25,224 | 57,773 |

1/ From "Areas of the United States 1940," U. S. Bureau of the Census but with adjustments as needed to bring county acreages up to 1950 acreages.

2/ Less than 500 acres.

Table 13.- Commercial forest land by subregion, stand-size class, and age class of timber, California, 1953

(Thousand acres)

| Stand-size class 1/ | Age class 2/ | All subregions | | | Eastside Sierra | | | Westside Sierra | | | Coast Range Pine | | | Redwood--Douglas-fir | | | Southern California | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total | Public | Private | Total | Public | Private | Total | Public | Private | Total | Public | Private | Total | Public | Private | Total | Public | Private |
| Old-growth saw timber | Total old growth | 11,240 | 6,919 | 4,321 | 2,498 | 1,624 | 874 | 3,560 | 2,489 | 1,071 | 2,530 | 1,714 | 816 | 2,430 | 948 | 1,482 | 222 | 144 | 78 |
| | Old growth | 399 | 138 | 221 | 40 | 32 | 8 | 58 | 48 | 10 | 27 | 16 | 11 | 234 | 42 | 192 | - | - | - |
| | Old growth-young growth | 3,440 | 3,591 | 1,849 | 926 | 625 | 301 | 1,544 | 1,179 | 369 | 1,409 | 1,043 | 366 | 1,371 | 618 | 753 | 190 | 130 | 60 |
| | Young growth-old growth | 3,441 | 3,190 | 2,251 | 1,532 | 967 | 565 | 1,958 | 1,266 | 692 | 1,094 | 655 | 439 | 825 | 288 | 537 | 32 | 14 | 18 |
| Young-growth saw timber | Large young growth | 2,798 | 799 | 1,999 | 605 | 301 | 304 | 1,038 | 321 | 717 | 173 | 66 | 107 | 978 | 110 | 868 | 4 | 1 | 3 |
| Pole timber & seedlings & saplings | Small young growth | 1,166 | 524 | 642 | 305 | 176 | 129 | 418 | 169 | 249 | 165 | 92 | 73 | 277 | 86 | 191 | 1 | 1 | (3/) |
| Nonstocked | Nonstocked | 2,113 | 1,022 | 1,091 | 511 | 335 | 176 | 711 | 311 | 400 | 334 | 202 | 132 | 953 | 172 | 381 | 4 | 2 | 2 |
| All classes | | 17,317 | 9,264 | 8,053 | 3,919 | 2,436 | 1,483 | 5,727 | 3,290 | 2,437 | 3,202 | 2,074 | 1,128 | 4,238 | 1,316 | 2,922 | 231 | 148 | 83 |

1/ Stand-size class as defined by national Forest Survey standards.
2/ Age class is a classification of timber stands used in California.
3/ Less than 500 acres.

Table 14.- Ownership of commercial forest land by subregion and stand-size class, California, 1953

| Stand-size class and subregion | Total all ownerships | Federally owned or managed | | | | | State | County and municipal | Private |
|---|---|---|---|---|---|---|---|---|---|
| | | Total federal | National forest | Indian | Bur. of Land Mgt. | Other | | | |
| | Thousand acres | | | | | | | | |
| OLD-GROWTH SAW TIMBER | | | | | | | | | |
| Eastside Sierra | 2,498 | 1,620 | 1,594 | 5 | 21 | (1/) | 4 | - | 874 |
| Westside Sierra | 3,560 | 2,478 | 2,439 | 3 | 17 | 19 | 11 | - | 1,071 |
| Coast Range Pine | 2,530 | 1,671 | 1,600 | 11 | 60 | (1/) | 42 | 1 | 816 |
| Redwood--Douglas-fir | 2,430 | 870 | 725 | 74 | 70 | 1 | 73 | 5 | 1,482 |
| Southern California | 222 | 144 | 142 | 2 | (1/) | - | - | - | 78 |
| California | 11,240 | 6,783 | 6,500 | 95 | 168 | 20 | 130 | 6 | 4,321 |
| YOUNG-GROWTH SAW TIMBER | | | | | | | | | |
| Eastside Sierra | 605 | 298 | 290 | 1 | 7 | (1/) | 3 | - | 304 |
| Westside Sierra | 1,038 | 319 | 275 | 1 | 34 | 9 | 2 | - | 717 |
| Coast Range Pine | 173 | 63 | 48 | 1 | 14 | - | 3 | (1/) | 107 |
| Redwood--Douglas-fir | 978 | 101 | 84 | 9 | 8 | (1/) | 9 | (1/) | 868 |
| Southern California | 4 | 1 | 1 | - | - | - | - | - | 3 |
| California | 2,798 | 782 | 698 | 12 | 63 | 9 | 17 | (1/) | 1,999 |
| POLE TIMBER AND SEEDLINGS AND SAPLINGS | | | | | | | | | |
| Eastside Sierra | 305 | 175 | 169 | 1 | 5 | - | 1 | - | 129 |
| Westside Sierra | 418 | 166 | 158 | (1/) | 7 | 1 | 3 | - | 249 |
| Coast Range Pine | 165 | 88 | 76 | 1 | 11 | (1/) | 4 | - | 73 |
| Redwood--Douglas-fir | 277 | 79 | 66 | 7 | 6 | (1/) | 7 | (1/) | 191 |
| Southern California | 1 | 1 | 1 | - | - | - | - | - | (1/) |
| California | 1,166 | 509 | 470 | 9 | 29 | 1 | 15 | (1/) | 642 |
| NONSTOCKED | | | | | | | | | |
| Eastside Sierra | 511 | 333 | 323 | 1 | 9 | - | 2 | (1/) | 176 |
| Westside Sierra | 711 | 307 | 276 | 2 | 20 | 9 | 4 | - | 400 |
| Coast Range Pine | 334 | 197 | 173 | 1 | 22 | 1 | 5 | - | 132 |
| Redwood--Douglas-fir | 553 | 157 | 131 | 13 | 13 | (1/) | 13 | 2 | 381 |
| Southern California | 4 | 2 | 2 | - | - | - | - | - | 2 |
| California | 2,113 | 996 | 905 | 17 | 64 | 10 | 24 | 2 | 1,091 |
| ALL CLASSES | | | | | | | | | |
| Eastside Sierra | 3,919 | 2,426 | 2,376 | 8 | 42 | (1/) | 10 | (1/) | 1,483 |
| Westside Sierra | 5,727 | 3,270 | 3,148 | 6 | 78 | 38 | 20 | - | 2,437 |
| Coast Range Pine | 3,202 | 2,019 | 1,897 | 14 | 107 | 1 | 54 | 1 | 1,128 |
| Redwood--Douglas-fir | 4,238 | 1,207 | 1,006 | 103 | 97 | 1 | 102 | 7 | 2,922 |
| Southern California | 231 | 148 | 146 | 2 | (1/) | - | - | - | 83 |
| California | 17,317 | 9,070 | 8,573 | 133 | 324 | 40 | 186 | 8 | 8,053 |

1/ Less than 500 acres.

Table 15.- Ownership of commercial forest land by timber type and subregion, California, 1953

| Timber type and subregion | Total all ownerships | Federally owned or managed | | | | | State | County and municipal | Private |
|---|---|---|---|---|---|---|---|---|---|
| | | Total federal | National forest | Indian | Bur. of Land Mgt. | Other | | | |
| | Thousand acres | | | | | | | | |
| PINE | | | | | | | | | |
| Eastside Sierra | 1,833 | 1,196 | 1,163 | 5 | 26 | (1/) | 5 | - | 634 |
| Westside Sierra | 1,719 | 714 | 646 | 4 | 52 | 12 | (1/) | - | 1,001 |
| Coast Range Pine | 213 | 86 | 64 | 1 | 21 | (1/) | 4 | - | 123 |
| Redwood--Douglas-fir | 10 | 3 | 3 | - | - | - | - | - | 7 |
| Southern California | 197 | 104 | 103 | 1 | (1/) | - | - | - | 93 |
| Total | 3,928 | 2,101 | 1,979 | 11 | 99 | 12 | 9 | - | 1,818 |
| REDWOOD | | | | | | | | | |
| Eastside Sierra | - | - | - | - | - | - | - | - | - |
| Westside Sierra | - | - | - | - | - | - | - | - | - |
| Coast Range Pine | - | - | - | - | - | - | - | - | - |
| Redwood--Douglas-fir | 1,918 | 41 | 9 | 9 | 26 | 1 | 83 | 4 | 1,790 |
| Southern California | 11 | 2 | 2 | - | - | - | - | - | 9 |
| Total | 1,929 | 43 | 7 | 9 | 26 | 1 | 83 | 4 | 1,799 |
| DOUGLAS-FIR | | | | | | | | | |
| Eastside Sierra | - | - | - | - | - | - | - | - | - |
| Westside Sierra | - | - | - | - | - | - | - | - | - |
| Coast Range Pine | 476 | 348 | 336 | 3 | 9 | - | 9 | - | 123 |
| Redwood--Douglas-fir | 2,005 | 904 | 740 | 94 | 70 | - | 17 | 3 | 1,081 |
| Southern California | - | - | - | - | - | - | - | - | - |
| Total | 2,481 | 1,252 | 1,076 | 97 | 79 | - | 22 | 3 | 1,204 |
| FIR | | | | | | | | | |
| Eastside Sierra | 348 | 218 | 216 | 1 | 1 | - | 1 | - | 129 |
| Westside Sierra | 505 | 437 | 437 | - | - | - | 1 | - | 67 |
| Coast Range Pine | 90 | 64 | 63 | - | 1 | - | 1 | - | 25 |
| Redwood--Douglas-fir | 39 | 36 | 36 | - | - | - | 1 | - | 2 |
| Southern California | 8 | 4 | 3 | 1 | - | - | - | - | 4 |
| Total | 990 | 759 | 755 | 2 | 2 | - | 4 | - | 227 |
| PINE--DOUGLAS-FIR--FIR | | | | | | | | | |
| Eastside Sierra | 1,641 | 938 | 921 | 2 | 13 | - | 4 | (1/) | 699 |
| Westside Sierra | 3,390 | 2,022 | 1,968 | 2 | 26 | 26 | 19 | - | 1,349 |
| Coast Range Pine | 2,423 | 1,521 | 1,434 | 10 | 76 | 1 | 44 | 1 | 857 |
| Redwood--Douglas-fir | 266 | 223 | 222 | - | 1 | - | 1 | - | 42 |
| Southern California | 55 | 38 | 38 | (1/) | - | - | - | - | 17 |
| Total | 7,775 | 4,742 | 4,583 | 14 | 118 | 27 | 68 | 1 | 2,964 |
| LODGEPOLE PINE | | | | | | | | | |
| Eastside Sierra | 97 | 76 | 76 | - | - | - | - | - | 21 |
| Westside Sierra | 117 | 97 | 97 | - | - | - | - | - | 20 |
| Coast Range Pine | - | - | - | - | - | - | - | - | - |
| Redwood--Douglas-fir | - | - | - | - | - | - | - | - | - |
| Southern California | - | - | - | - | - | - | - | - | - |
| Total | 214 | 173 | 173 | - | - | - | - | - | 41 |
| ALL TYPES | | | | | | | | | |
| Eastside Sierra | 3,919 | 2,426 | 2,376 | 8 | 42 | (1/) | 10 | (1/) | 1,483 |
| Westside Sierra | 5,727 | 3,270 | 3,148 | 6 | 78 | 38 | 20 | - | 2,437 |
| Coast Range Pine | 3,202 | 2,019 | 1,897 | 14 | 107 | 1 | 54 | 1 | 1,128 |
| Redwood--Douglas-fir | 4,238 | 1,207 | 1,006 | 103 | 97 | 1 | 102 | 7 | 2,922 |
| Southern California | 231 | 148 | 146 | 2 | - | - | - | - | 83 |
| Total | 17,317 | 9,070 | 8,573 | 133 | 324 | 40 | 186 | 8 | 8,033 |

1/ Less than 500 acres.

Table 16.- Stand-size class of timber stands on commercial forest land, by timber type and subregion, California, 1953

| Timber type and subregion | Total | Stand-size class | | | |
|---|---|---|---|---|---|
| | | Saw timber | | Pole timber and seedlings and saplings | Nonstocked |
| | | Old growth | Young growth | | |
| | Thousand acres | | | | |
| PINE | | | | | |
| Eastside Sierra | 1,833 | 1,045 | 324 | 200 | 264 |
| Westside Sierra | 1,715 | 664 | 566 | 149 | 336 |
| Coast Range Pine | 213 | 141 | 27 | 17 | 28 |
| Redwood--Douglas-fir | 10 | 6 | 2 | 1 | 1 |
| Southern California | 157 | 151 | 2 | 1 | 3 |
| Total | 3,928 | 2,007 | 921 | 368 | 632 |
| REDWOOD | | | | | |
| Eastside Sierra | - | - | - | - | - |
| Westside Sierra | - | - | - | - | - |
| Coast Range Pine | - | - | - | - | - |
| Redwood--Douglas-fir | 1,918 | 1,100 | 443 | 125 | 250 |
| Southern California | 11 | 11 | (1/) | - | - |
| Total | 1,929 | 1,111 | 443 | 125 | 250 |
| DOUGLAS-FIR | | | | | |
| Eastside Sierra | - | - | - | - | - |
| Westside Sierra | - | - | - | - | - |
| Coast Range Pine | 476 | 346 | 40 | 21 | 69 |
| Redwood--Douglas-fir | 2,005 | 1,149 | 463 | 131 | 262 |
| Southern California | - | - | - | - | - |
| Total | 2,481 | 1,495 | 503 | 152 | 331 |
| FIR | | | | | |
| Eastside Sierra | 348 | 281 | 33 | 11 | 23 |
| Westside Sierra | 505 | 450 | 21 | 15 | 19 |
| Coast Range Pine | 90 | 74 | 3 | 5 | 8 |
| Redwood--Douglas-fir | 39 | 22 | 9 | 3 | 5 |
| Southern California | 8 | 8 | - | - | - |
| Total | 990 | 835 | 66 | 34 | 55 |
| PINE--DOUGLAS-FIR--FIR | | | | | |
| Eastside Sierra | 1,641 | 1,091 | 233 | 93 | 224 |
| Westside Sierra | 3,390 | 2,331 | 450 | 253 | 356 |
| Coast Range Pine | 2,423 | 1,969 | 103 | 122 | 229 |
| Redwood--Douglas-fir | 266 | 153 | 61 | 17 | 35 |
| Southern California | 55 | 52 | 2 | - | 1 |
| Total | 7,775 | 5,596 | 849 | 485 | 845 |
| LODGEPOLE PINE | | | | | |
| Eastside Sierra | 97 | 81 | 15 | 1 | (1/) |
| Westside Sierra | 117 | 115 | 1 | 1 | - |
| Coast Range Pine | - | - | - | - | - |
| Redwood--Douglas-fir | - | - | - | - | - |
| Southern California | - | - | - | - | - |
| Total | 214 | 196 | 16 | 2 | (1/) |
| ALL TYPES | | | | | |
| Eastside Sierra | 3,919 | 2,498 | 605 | 305 | 511 |
| Westside Sierra | 5,727 | 3,560 | 1,038 | 418 | 711 |
| Coast Range Pine | 3,202 | 2,530 | 173 | 165 | 334 |
| Redwood--Douglas-fir | 4,238 | 2,430 | 978 | 277 | 553 |
| Southern California | 231 | 222 | 4 | 1 | 4 |
| Total | 17,317 | 11,240 | 2,798 | 1,166 | 2,113 |

1/ Less than 500 acres.

Table 17.- Degree of stocking on commercial forest land, by stand-size class and subregion, California, 1953

| Stand-size class and subregion | All areas | Degree of stocking | | | |
|---|---|---|---|---|---|
| | | Well-stocked | Medium-stocked | Poorly stocked | Non-stocked |
| | ---------- Thousand acres ---------- | | | | |
| OLD-GROWTH SAW TIMBER | | | | | |
| Eastside Sierra | 2,498 | 716 | 1,220 | 562 | - |
| Westside Sierra | 3,560 | 1,350 | 1,652 | 558 | - |
| Coast Range Pine | 2,530 | 1,265 | 901 | 364 | - |
| Redwood--Douglas-fir | 2,430 | 1,470 | 686 | 274 | - |
| Southern California | 222 | 7 | 150 | 65 | - |
| Total | 11,240 | 4,808 | 4,609 | 1,823 | - |
| YOUNG-GROWTH SAW TIMBER | | | | | |
| Eastside Sierra | 605 | 146 | 245 | 214 | - |
| Westside Sierra | 1,038 | 403 | 283 | 352 | - |
| Coast Range Pine | 173 | 69 | 43 | 61 | - |
| Redwood--Douglas-fir | 978 | 409 | 300 | 269 | - |
| Southern California | 4 | 2 | 1 | 1 | - |
| Total | 2,798 | 1,029 | 872 | 897 | - |
| POLE TIMBER AND SEEDLINGS AND SAPLINGS | | | | | |
| Eastside Sierra | 305 | 22 | 79 | 204 | - |
| Westside Sierra | 418 | 78 | 243 | 97 | - |
| Coast Range Pine | 165 | 57 | 68 | 40 | - |
| Redwood--Douglas-fir | 277 | 39 | 61 | 177 | - |
| Southern California | 1 | - | - | 1 | - |
| Total | 1,166 | 196 | 451 | 519 | - |
| NONSTOCKED | | | | | |
| Eastside Sierra | 511 | - | - | - | 511 |
| Westside Sierra | 711 | - | - | - | 711 |
| Coast Range Pine | 334 | - | - | - | 334 |
| Redwood--Douglas-fir | 553 | - | - | - | 553 |
| Southern California | 4 | - | - | - | 4 |
| Total | 2,113 | - | - | - | 2,113 |
| ALL CLASSES | | | | | |
| Eastside Sierra | 3,919 | 884 | 1,544 | 980 | 511 |
| Westside Sierra | 5,727 | 1,831 | 2,178 | 1,007 | 711 |
| Coast Range Pine | 3,202 | 1,391 | 1,012 | 465 | 334 |
| Redwood--Douglas-fir | 4,238 | 1,918 | 1,047 | 720 | 553 |
| Southern California | 231 | 9 | 151 | 67 | 4 |
| Total | 17,317 | 6,033 | 5,932 | 3,239 | 2,113 |

Table 18.- Site quality of commercial forest land, by timber type and subregion, California, 1953

| Timber type and subregion | Total | Site quality | | |
|---|---|---|---|---|
| | | High | Medium | Low |
| | Thousand acres | | | |
| PINE | | | | |
| Eastside Sierra | 1,833 | 61 | 908 | 864 |
| Westside Sierra | 1,715 | 566 | 976 | 173 |
| Coast Range Pine | 213 | 38 | 125 | 50 |
| Redwood--Douglas-fir | 10 | 3 | 7 | - |
| Southern California | 157 | 5 | 78 | 74 |
| Total | 3,928 | 673 | 2,094 | 1,161 |
| REDWOOD | | | | |
| Eastside Sierra | - | - | - | - |
| Westside Sierra | - | - | - | - |
| Coast Range Pine | - | - | - | - |
| Redwood--Douglas-fir | 1,918 | 1,559 | 328 | 31 |
| Southern California | 11 | 2 | 9 | - |
| Total | 1,929 | 1,561 | 337 | 31 |
| DOUGLAS-FIR | | | | |
| Eastside Sierra | - | - | - | - |
| Westside Sierra | - | - | - | - |
| Coast Range Pine | 476 | 272 | 172 | 32 |
| Redwood--Douglas-fir | 2,005 | 1,051 | 758 | 196 |
| Southern California | - | - | - | - |
| Total | 2,481 | 1,323 | 930 | 228 |
| FIR | | | | |
| Eastside Sierra | 348 | 46 | 207 | 95 |
| Westside Sierra | 505 | 111 | 297 | 97 |
| Coast Range Pine | 90 | 41 | 34 | 15 |
| Redwood--Douglas-fir | 39 | 6 | 22 | 11 |
| Southern California | 8 | 1 | 5 | 2 |
| Total | 990 | 205 | 565 | 220 |
| PINE--DOUGLAS-FIR--FIR | | | | |
| Eastside Sierra | 1,641 | 129 | 972 | 540 |
| Westside Sierra | 3,390 | 1,291 | 1,669 | 430 |
| Coast Range Pine | 2,423 | 771 | 1,364 | 288 |
| Redwood--Douglas-fir | 266 | 110 | 101 | 55 |
| Southern California | 55 | 4 | 33 | 18 |
| Total | 7,775 | 2,305 | 4,139 | 1,331 |
| LODGEPOLE PINE | | | | |
| Eastside Sierra | 97 | - | 12 | 85 |
| Westside Sierra | 117 | - | 58 | 59 |
| Coast Range Pine | - | - | - | - |
| Redwood--Douglas-fir | - | - | - | - |
| Southern California | - | - | - | - |
| Total | 214 | - | 70 | 144 |
| ALL TYPES | | | | |
| Eastside Sierra | 3,919 | 236 | 2,099 | 1,584 |
| Westside Sierra | 5,727 | 1,968 | 3,000 | 759 |
| Coast Range Pine | 3,202 | 1,122 | 1,695 | 385 |
| Redwood--Douglas-fir | 4,238 | 2,729 | 1,216 | 293 |
| Southern California | 231 | 12 | 125 | 94 |
| Total | 17,317 | 6,067 | 8,135 | 3,115 |

Table 19.- Live saw timber volume on commercial forest land, by species and subregion, California, 1953

| Species | California | | Subregion | | | | |
|---|---|---|---|---|---|---|---|
| | | | Eastside Sierra | Westside Sierra | Coast Range Pine | Redwood--Douglas-fir | Southern California |
| | Million bd.ft. Scribner | Million bd.ft. Int.1/ | Million bd.ft. Int. | | | | |
| Softwoods | | | | | | | |
| Douglas-fir | 110,667 | 116,912 | 1,749 | 12,594 | 27,270 | 75,282 | 17 |
| Ponderosa and Jeffrey pine | 62,723 | 66,741 | 16,937 | 30,374 | 15,512 | 2,527 | 1,391 |
| White fir | 53,672 | 2/57,214 | 8,986 | 34,024 | 7,853 | 6,197 | 154 |
| California red fir | 29,557 | 31,510 | 7,098 | 21,193 | 2,557 | 662 | - |
| Western hemlock | 439 | 471 | - | - | - | 471 | - |
| Sugar pine | 26,007 | 27,384 | 1,396 | 15,042 | 6,320 | 4,590 | 36 |
| Western white pine | 1,990 | 2,131 | 559 | 1,198 | 277 | 97 | - |
| Redwood | 34,346 | 36,124 | - | - | - | 35,827 | 297 |
| Sitka spruce | 165 | 170 | - | - | - | 170 | - |
| Western redcedar | 2 | 2 | - | - | - | 2 | - |
| Incense cedar | 9,044 | 9,727 | 1,110 | 7,098 | 935 | 573 | 11 |
| Lodgepole pine | 3,469 | 3,807 | 2,367 | 1,406 | 34 | - | (3/) |
| Other | 1,660 | 1,831 | 427 | 207 | 656 | 503 | 38 |
| Total | 333,741 | 354,024 | 40,629 | 123,136 | 61,414 | 126,901 | 1,944 |
| Hardwoods | | | | | | | |
| California black oak | 1,914 | 1,946 | 19 | 997 | 622 | 308 | - |
| Tanoak | 2,005 | 2,036 | - | 4 | 65 | 1,967 | - |
| Aspen | 36 | 37 | 37 | - | - | - | - |
| Alder | 161 | 166 | - | 12 | 49 | 105 | - |
| Other | 1,762 | 1,792 | - | 201 | 429 | 1,162 | - |
| Total | 5,878 | 5,977 | 56 | 1,214 | 1,165 | 3,542 | - |
| All species | 339,619 | 360,001 | 40,685 | 124,350 | 62,579 | 130,443 | 1,944 |

1/ International 1/4-inch log rule.
2/ Includes 1,281 million board feet of grand fir in Redwood--Douglas-fir subregion.
3/ Less than 0.5 million board feet.

Table 20.- Live saw timber volume on commercial forest land, by species, subregion, and diameter class groups, California, 1953

| Subregion and diameter class groups | Total | Species | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Ponderosa pine[1] | Sugar pine | Redwood | Douglas-fir | True firs | Other softwoods | Hardwoods |
| | Million board feet[2] | | | | | | | |
| EASTSIDE SIERRA | | | | | | | | |
| 11.0 - 20.9 | 6,425 | 2,413 | 51 | - | 154 | 2,394 | 1,374 | 39 |
| 21.0 - 30.9 | 12,096 | 4,849 | 131 | - | 295 | 5,068 | 1,736 | 17 |
| 31.0 - 40.9 | 11,617 | 5,557 | 182 | - | 408 | 4,567 | 903 | - |
| 41.0 and larger | 10,547 | 4,118 | 1,032 | - | 892 | 4,055 | 450 | - |
| Total | 40,685 | 16,937 | 1,396 | - | 1,749 | 16,084 | 4,463 | 56 |
| WESTSIDE SIERRA | | | | | | | | |
| 11.0 - 20.9 | 15,638 | 3,485 | 1,016 | - | 1,723 | 6,756 | 2,280 | 378 |
| 21.0 - 30.9 | 29,074 | 6,906 | 2,125 | - | 2,898 | 14,100 | 2,522 | 523 |
| 31.0 - 40.9 | 31,798 | 8,474 | 2,354 | - | 2,478 | 15,355 | 2,898 | 239 |
| 41.0 and larger | 47,840 | 11,509 | 9,547 | - | 5,495 | 19,006 | 2,209 | 74 |
| Total | 124,350 | 30,374 | 15,042 | - | 12,594 | 55,217 | 9,916 | 1,214 |
| COAST RANGE PINE | | | | | | | | |
| 11.0 - 20.9 | 6,460 | 1,245 | 352 | - | 2,647 | 1,210 | 524 | 482 |
| 21.0 - 30.9 | 16,172 | 4,111 | 955 | - | 6,194 | 3,835 | 611 | 466 |
| 31.0 - 40.9 | 18,588 | 5,772 | 2,087 | - | 7,052 | 3,115 | 345 | 217 |
| 41.0 and larger | 21,359 | 4,384 | 2,926 | - | 11,377 | 2,250 | 422 | - |
| Total | 62,579 | 15,512 | 6,320 | - | 27,270 | 10,410 | 1,902 | 1,165 |
| REDWOOD--DOUGLAS-FIR | | | | | | | | |
| 11.0 - 20.9 | 11,594 | 192 | 199 | 3,330 | 4,646 | 1,091 | 536 | 1,600 |
| 21.0 - 30.9 | 23,991 | 872 | 855 | 4,453 | 13,643 | 2,404 | 442 | 1,322 |
| 31.0 - 40.9 | 27,967 | 924 | 1,159 | 4,402 | 18,808 | 1,852 | 301 | 521 |
| 41.0 and larger | 66,891 | 539 | 2,377 | 23,642 | 38,185 | 1,512 | 537 | 99 |
| Total | 130,443 | 2,527 | 4,590 | 35,827 | 75,282 | 6,859 | 1,816 | 3,542 |
| SOUTHERN CALIFORNIA | | | | | | | | |
| 11.0 - 20.9 | 268 | 198 | 3 | 28 | 1 | 23 | 15 | - |
| 21.0 - 30.9 | 511 | 398 | 6 | 37 | 3 | 48 | 19 | - |
| 31.0 - 40.9 | 557 | 457 | 6 | 36 | 4 | 44 | 10 | - |
| 41.0 and larger | 608 | 338 | 21 | 196 | 9 | 39 | 5 | - |
| Total | 1,944 | 1,391 | 36 | 297 | 17 | 154 | 49 | - |
| CALIFORNIA | | | | | | | | |
| 11.0 - 20.9 | 40,384 | 7,533 | 1,621 | 3,358 | 9,171 | 11,474 | 4,728 | 2,499 |
| 21.0 - 30.9 | 81,844 | 17,136 | 4,072 | 4,490 | 23,033 | 25,455 | 5,330 | 2,328 |
| 31.0 - 40.9 | 90,527 | 21,184 | 5,788 | 4,438 | 28,750 | 24,933 | 4,457 | 977 |
| 41.0 and larger | 147,246 | 20,888 | 15,903 | 23,838 | 55,958 | 26,862 | 3,624 | 173 |
| Total | 360,001 | 66,741 | 27,384 | 36,124 | 116,912 | 88,724 | 18,139 | 5,977 |

1/ Includes Jeffrey pine.
2/ Log scale, International 1/4-inch rule. All board foot volumes in the remaining tables are by International 1/4-inch rule unless otherwise specified.

Table 21.- Live saw-timber volume on commercial forest land, by subregion, stand-size class, and age class of timber, California, 1953

(Million board feet)

| Stand-size class1/ | Age class2/ | All subregions | | | Eastside Sierra | | | Westside Sierra | | | Coast Range Pine | | | Redwood--Douglas-fir | | | Southern California | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total | Public | Private | Total | Public | Private | Total | Public | Private | Total | Public | Private | Total | Public | Private | Total | Public | Private |
| Old-growth saw timber | Total old growth | 305,691 | 179,772 | 125,919 | 36,762 | 23,379 | 13,383 | 107,692 | 73,546 | 32,146 | 57,096 | 40,233 | 16,863 | 102,220 | 39,424 | 62,796 | 1,921 | 1,190 | 731 |
| | Old growth | 26,457 | 6,428 | 20,029 | 555 | 448 | 107 | 2,012 | 1,747 | 266 | 870 | 617 | 253 | 23,020 | 3,616 | 19,404 | - | - | - |
| | Old-growth-young growth | 168,821 | 108,789 | 60,032 | 17,927 | 11,300 | 6,627 | 55,793 | 41,374 | 14,419 | 37,013 | 27,739 | 9,274 | 56,299 | 27,252 | 29,047 | 1,789 | 1,124 | 665 |
| | Young growth-old growth | 110,413 | 64,555 | 49,858 | 18,280 | 11,631 | 6,649 | 49,887 | 32,425 | 17,462 | 19,213 | 11,877 | 7,336 | 22,901 | 8,556 | 14,345 | 132 | 66 | 66 |
| Young-growth saw timber | Large young growth | 49,786 | 10,580 | 39,206 | 2,790 | 1,407 | 1,383 | 13,133 | 4,470 | 8,663 | 4,224 | 1,819 | 2,405 | 25,619 | 2,877 | 22,742 | 20 | 7 | 13 |
| Pole timber & seedlings & saplings | Small young growth | 4,308 | 1,610 | 2,698 | 645 | 376 | 269 | 1,770 | 708 | 1,062 | 970 | 323 | 647 | 1,322 | 202 | 1,120 | 1 | 1 | - |
| Nonstocked | Nonstocked | 4,216 | 1,849 | 2,367 | 488 | 320 | 168 | 1,795 | 769 | 986 | 689 | 417 | 272 | 1,282 | 342 | 940 | 2 | 1 | 1 |
| All classes | | 360,000 | 193,811 | 166,190 | 40,685 | 25,482 | 15,203 | 124,390 | 81,493 | 42,897 | 62,979 | 42,792 | 19,787 | 130,443 | 42,845 | 87,598 | 1,944 | 1,199 | 745 |

1/ Stand-size class as defined by national Forest Survey standards.
2/ Age class is a classification of timber stands used in California.

Table 22.- Ownership of live saw-timber volume on commercial forest land, by stand-size class and subregion, California, 1953

| Stand-size class and subregion | Total all ownerships | Federally owned or managed | | | | | State | County and municipal | Private |
|---|---|---|---|---|---|---|---|---|---|
| | | Total federal | National forest | Indian | Bur. of Land Mgt. | Other | | | |
| | Million board feet | | | | | | | | |
| OLD-GROWTH SAW TIMBER | | | | | | | | | |
| Eastside Sierra | 36,762 | 23,312 | 23,017 | 63 | 231 | 1 | 67 | - | 13,383 |
| Westside Sierra | 107,692 | 75,206 | 74,543 | 46 | 373 | 244 | 340 | - | 32,146 |
| Coast Range Pine | 57,096 | 39,351 | 37,970 | 211 | 1,169 | 1 | 853 | 29 | 16,863 |
| Redwood--Douglas-fir | 102,220 | 36,408 | 30,196 | 3,292 | 2,895 | 25 | 2,863 | 153 | 62,796 |
| Southern California | 1,921 | 1,190 | 1,163 | 27 | (1/) | - | - | - | 731 |
| Total | 305,691 | 175,467 | 166,889 | 3,639 | 4,668 | 271 | 4,123 | 182 | 125,919 |
| YOUNG-GROWTH SAW TIMBER | | | | | | | | | |
| Eastside Sierra | 2,790 | 1,395 | 1,362 | 4 | 29 | - | 12 | - | 1,383 |
| Westside Sierra | 13,133 | 4,452 | 4,008 | 14 | 359 | 71 | 18 | - | 8,663 |
| Coast Range Pine | 4,224 | 1,721 | 1,392 | 10 | 319 | - | 98 | - | 2,405 |
| Redwood--Douglas-fir | 25,619 | 2,657 | 2,204 | 240 | 211 | 2 | 209 | 11 | 22,742 |
| Southern California | 20 | 7 | 7 | - | - | - | - | - | 13 |
| Total | 45,786 | 10,232 | 8,973 | 268 | 918 | 73 | 337 | 11 | 35,206 |
| POLE TIMBER AND SEEDLINGS AND SAPLINGS | | | | | | | | | |
| Eastside Sierra | 645 | 374 | 360 | 2 | 12 | (1/) | 2 | - | 269 |
| Westside Sierra | 1,770 | 694 | 661 | (1/) | 28 | 5 | 14 | - | 1,062 |
| Coast Range Pine | 570 | 314 | 263 | 5 | 46 | (1/) | 9 | - | 247 |
| Redwood--Douglas-fir | 1,322 | 186 | 154 | 17 | 15 | (1/) | 15 | 1 | 1,120 |
| Southern California | 1 | 1 | 1 | - | - | - | - | - | - |
| Total | 4,308 | 1,569 | 1,439 | 24 | 101 | 5 | 40 | 1 | 2,698 |
| NONSTOCKED | | | | | | | | | |
| Eastside Sierra | 488 | 318 | 308 | 1 | 9 | - | 2 | (1/) | 168 |
| Westside Sierra | 1,755 | 759 | 682 | 6 | 51 | 20 | 10 | - | 986 |
| Coast Range Pine | 689 | 407 | 359 | 2 | 45 | 1 | 10 | - | 272 |
| Redwood--Douglas-fir | 1,282 | 316 | 262 | 29 | 25 | (1/) | 25 | 1 | 940 |
| Southern California | 2 | 1 | 1 | - | - | - | - | - | 1 |
| Total | 4,216 | 1,801 | 1,612 | 38 | 130 | 21 | 47 | 1 | 2,367 |
| ALL CLASSES | | | | | | | | | |
| Eastside Sierra | 40,685 | 25,399 | 25,047 | 70 | 281 | 1 | 83 | (1/) | 15,203 |
| Westside Sierra | 124,350 | 81,111 | 79,894 | 66 | 811 | 340 | 382 | - | 42,857 |
| Coast Range Pine | 62,579 | 41,793 | 39,984 | 228 | 1,579 | 2 | 970 | 29 | 19,787 |
| Redwood--Douglas-fir | 130,443 | 39,567 | 32,816 | 3,578 | 3,146 | 27 | 3,112 | 166 | 87,598 |
| Southern California | 1,944 | 1,199 | 1,172 | 27 | (1/) | - | - | - | 745 |
| Total | 360,001 | 189,069 | 178,913 | 3,969 | 5,817 | 370 | 4,547 | 195 | 166,190 |

1/ Less than 0.5 million board feet.

Table 23.- Average volume per acre of live saw timber on commercial forest land, by stand-size class and subregion, California, 1953

| Subregion | All classes | Stand-size class | | | |
|---|---|---|---|---|---|
| | | Saw timber | | Pole timber and seedlings and saplings | Non-stocked |
| | | Old growth | Young growth | | |
| | Board feet | | | | |
| Eastside Sierra | 10,381 | 14,716 | 4,612 | 2,115 | 955 |
| Westside Sierra | 21,713 | 30,251 | 12,652 | 4,234 | 2,468 |
| Coast Range Pine | 19,544 | 22,568 | 24,416 | 3,455 | 2,063 |
| Redwood--Douglas-fir | 30,779 | 42,066 | 26,195 | 4,773 | 2,318 |
| Southern California | 8,416 | 8,653 | 5,000 | 1,000 | 500 |
| California | 20,789 | 27,197 | 16,364 | 3,695 | 1,995 |

Table 24.- Ownership of growing stock on commercial forest land, by stand-size class and subregion, California, 1953

| Stand-size class and subregion | Total all ownerships | Federally owned or managed | | | | | State | County and municipal | Private |
|---|---|---|---|---|---|---|---|---|---|
| | | Total federal | National forest | Indian | Bur. of Land Mgt. | Other | | | |
| | Million cubic feet | | | | | | | | |
| OLD-GROWTH SAW TIMBER | | | | | | | | | |
| Eastside Sierra | 6,835 | 4,343 | 4,287 | 12 | 44 | (1/) | 12 | - | 2,480 |
| Westside Sierra | 18,801 | 13,127 | 13,003 | 9 | 68 | 47 | 59 | - | 5,615 |
| Coast Range Pine | 10,329 | 7,067 | 6,812 | 39 | 216 | (1/) | 155 | 6 | 3,101 |
| Redwood--Douglas-fir | 18,637 | 6,662 | 5,529 | 600 | 529 | 4 | 522 | 28 | 11,425 |
| Southern California | 375 | 232 | 227 | 5 | (1/) | - | - | - | 143 |
| Total | 54,977 | 31,431 | 29,858 | 665 | 857 | 51 | 748 | 34 | 22,764 |
| YOUNG-GROWTH SAW TIMBER | | | | | | | | | |
| Eastside Sierra | 813 | 405 | 395 | 1 | 9 | (1/) | 4 | - | 404 |
| Westside Sierra | 2,983 | 1,000 | 897 | 3 | 83 | 17 | 5 | - | 1,978 |
| Coast Range Pine | 820 | 330 | 264 | 3 | 63 | - | 18 | - | 472 |
| Redwood--Douglas-fir | 4,663 | 486 | 404 | 44 | 38 | (1/) | 38 | 2 | 4,137 |
| Southern California | 5 | 2 | 2 | - | - | - | - | - | 3 |
| Total | 9,284 | 2,223 | 1,962 | 51 | 193 | 17 | 65 | 2 | 6,994 |
| POLE TIMBER AND SEEDLINGS AND SAPLINGS | | | | | | | | | |
| Eastside Sierra | 164 | 96 | 92 | 1 | 3 | - | (1/) | - | 68 |
| Westside Sierra | 452 | 178 | 170 | (1/) | 7 | 1 | 3 | - | 271 |
| Coast Range Pine | 218 | 119 | 100 | 2 | 17 | (1/) | 4 | - | 95 |
| Redwood--Douglas-fir | 241 | 34 | 28 | 3 | 3 | (1/) | 3 | (1/) | 204 |
| Southern California | (1/) | (1/) | (1/) | - | - | - | - | - | - |
| Total | 1,075 | 427 | 390 | 6 | 30 | 1 | 10 | (1/) | 638 |
| NONSTOCKED | | | | | | | | | |
| Eastside Sierra | 146 | 95 | 92 | - | 3 | - | 1 | (1/) | 50 |
| Westside Sierra | 430 | 186 | 168 | 1 | 12 | 5 | 2 | - | 242 |
| Coast Range Pine | 266 | 156 | 138 | (1/) | 17 | 1 | 5 | - | 105 |
| Redwood--Douglas-fir | 233 | 58 | 48 | 5 | 5 | (1/) | 4 | (1/) | 171 |
| Southern California | (1/) | (1/) | (1/) | - | - | - | - | - | (1/) |
| Total | 1,075 | 495 | 446 | 6 | 37 | 6 | 12 | (1/) | 568 |
| ALL CLASSES | | | | | | | | | |
| Eastside Sierra | 7,958 | 4,939 | 4,866 | 14 | 59 | (1/) | 17 | (1/) | 3,002 |
| Westside Sierra | 22,666 | 14,491 | 14,238 | 13 | 170 | 70 | 69 | - | 8,106 |
| Coast Range Pine | 11,633 | 7,672 | 7,314 | 44 | 313 | 1 | 182 | 6 | 3,773 |
| Redwood--Douglas-fir | 23,774 | 7,240 | 6,009 | 652 | 575 | 4 | 567 | 30 | 15,937 |
| Southern California | 380 | 234 | 229 | 5 | (1/) | - | - | - | 146 |
| Total | 66,411 | 34,576 | 32,656 | 728 | 1,117 | 75 | 835 | 36 | 30,964 |

1/ Less than 0.5 million cubic feet.

Table 25.- All timber volume on commercial forest land, by species, subregion, and class of material, California, 1953

| Subregion and class of material | Total | Ponderosa and Jeffrey pine | Sugar pine | Redwood | Douglas-fir | White fir | California red fir | Other soft-woods | Hard-woods |
|---|---|---|---|---|---|---|---|---|---|
| | Million cubic feet | | | | | | | | |
| EASTSIDE SIERRA | | | | | | | | | |
| Growing stock | | | | | | | | | |
| Saw-timber trees | | | | | | | | | |
| Sawlog | 6,182 | 2,488 | 198 | - | 250 | 1,434 | 1,083 | 718 | 11 |
| Upper stem | 1,077 | 433 | 13 | - | 32 | 200 | 123 | 236 | - |
| Total | 7,259 | 2,921 | 211 | - | 282 | 1,634 | 1,206 | 954 | 11 |
| Pole-timber trees | 699 | 233 | 5 | - | 33 | 189 | 50 | 129 | 50 |
| Total growing stock | 7,958 | 3,154 | 216 | - | 315 | 1,823 | 1,256 | 1,133 | 61 |
| Other material | 208 | 47 | 4 | - | 11 | 53 | 28 | 25 | 30 |
| Total | 8,166 | 3,201 | 220 | - | 326 | 1,876 | 1,284 | 1,158 | 91 |
| WESTSIDE SIERRA | | | | | | | | | |
| Growing stock | | | | | | | | | |
| Saw-timber trees | | | | | | | | | |
| Sawlog | 18,423 | 4,320 | 2,128 | - | 1,804 | 5,139 | 3,232 | 1,547 | 253 |
| Upper stem | 2,544 | 826 | 188 | - | 303 | 538 | 368 | 321 | - |
| Total | 20,967 | 5,146 | 2,316 | - | 2,107 | 5,677 | 3,600 | 1,868 | 253 |
| Pole-timber trees | 1,699 | 245 | 63 | - | 243 | 419 | 119 | 275 | 335 |
| Total growing stock | 22,666 | 5,391 | 2,379 | - | 2,350 | 6,096 | 3,719 | 2,143 | 588 |
| Other material | 637 | 64 | 10 | - | 15 | 38 | 13 | 36 | 461 |
| Total | 23,303 | 5,455 | 2,389 | - | 2,365 | 6,134 | 3,732 | 2,179 | 1,049 |
| COAST RANGE PINE | | | | | | | | | |
| Growing stock | | | | | | | | | |
| Saw-timber trees | | | | | | | | | |
| Sawlog | 9,351 | 2,224 | 905 | - | 4,008 | 1,245 | 396 | 329 | 244 |
| Upper stem | 1,288 | 329 | 85 | - | 586 | 182 | 42 | 64 | - |
| Total | 10,639 | 2,553 | 990 | - | 4,594 | 1,427 | 438 | 393 | 244 |
| Pole-timber trees | 994 | 121 | 33 | - | 254 | 93 | 11 | 82 | 400 |
| Total growing stock | 11,633 | 2,674 | 1,023 | - | 4,848 | 1,520 | 449 | 475 | 644 |
| Other material | 515 | 8 | 15 | - | 97 | 27 | (1/) | 1 | 367 |
| Total | 12,148 | 2,682 | 1,038 | - | 4,945 | 1,547 | 449 | 476 | 1,011 |
| REDWOOD--DOUGLAS-FIR | | | | | | | | | |
| Growing stock | | | | | | | | | |
| Saw-timber trees | | | | | | | | | |
| Sawlog | 19,415 | 372 | 677 | 5,283 | 11,101 | 914 | 97 | 267 | 704 |
| Upper stem | 2,869 | 57 | 104 | 810 | 1,702 | 140 | 15 | 41 | - |
| Total | 22,284 | 429 | 781 | 6,093 | 12,803 | 1,054 | 112 | 308 | 704 |
| Pole-timber trees | 1,490 | 15 | 26 | 209 | 439 | 36 | 4 | 11 | 750 |
| Total growing stock | 23,774 | 444 | 807 | 6,302 | 13,242 | 1,090 | 116 | 319 | 1,454 |
| Other material | 1,860 | (1/) | 21 | 226 | 433 | 9 | 2 | 13 | 1,156 |
| Total | 25,634 | 444 | 828 | 6,528 | 13,675 | 1,099 | 118 | 332 | 2,610 |
| SOUTHERN CALIFORNIA | | | | | | | | | |
| Growing stock | | | | | | | | | |
| Saw-timber trees | | | | | | | | | |
| Sawlog | 297 | 213 | 5 | 45 | 2 | 24 | - | 8 | - |
| Upper stem | 50 | 36 | 1 | 8 | (1/) | 4 | - | 1 | - |
| Total | 347 | 249 | 6 | 53 | 2 | 28 | - | 9 | - |
| Pole-timber trees | 33 | 23 | 1 | 5 | 1 | 2 | - | 1 | - |
| Total growing stock | 380 | 272 | 7 | 58 | 3 | 30 | - | 10 | - |
| Other material | - | - | - | - | - | - | - | - | - |
| Total | 380 | 272 | 7 | 58 | 3 | 30 | - | 10 | - |
| ALL SUBREGIONS | | | | | | | | | |
| Growing stock | | | | | | | | | |
| Saw-timber trees | | | | | | | | | |
| Sawlog | 53,668 | 9,617 | 3,913 | 5,328 | 17,165 | 8,756 | 4,808 | 2,869 | 1,212 |
| Upper stem | 7,788 | 1,681 | 391 | 818 | 2,623 | 1,064 | 548 | 663 | - |
| Total | 61,456 | 11,298 | 4,304 | 6,146 | 19,788 | 9,820 | 5,356 | 3,532 | 1,212 |
| Pole-timber trees | 4,955 | 637 | 128 | 214 | 970 | 739 | 184 | 548 | 1,535 |
| Total growing stock | 66,411 | 11,935 | 4,432 | 6,360 | 20,758 | 10,559 | 5,540 | 4,080 | 2,747 |
| Other material | 3,220 | 119 | 50 | 226 | 556 | 127 | 53 | 75 | 2,014 |
| Total | 69,631 | 12,054 | 4,482 | 6,586 | 21,314 | 10,686 | 5,593 | 4,155 | 4,761 |

1/ Less than 0.5 million cubic feet.

Table 26.- Average annual growth of live saw timber on commercial forest land by species group, stand-size class, and subregion, California, 1952

| Stand-size class and subregion | Total | | Softwoods | | Hardwoods | | Average per acre | |
|---|---|---|---|---|---|---|---|---|
| | Gross | Net | Gross | Net | Gross | Net | Gross | Net |
| | Million board feet | | | | | | Board feet | |
| OLD-GROWTH SAW TIMBER | | | | | | | | |
| Eastside Sierra | 510 | 162 | 510 | 162 | - | - | 204 | 65 |
| Westside Sierra | 1,432 | 876 | 1,427 | 872 | 5 | 4 | 402 | 246 |
| Coast Range Pine | 603 | 328 | 589 | 319 | 14 | 9 | 238 | 130 |
| Redwood--Douglas-fir | 850 | 393 | 794 | 375 | 56 | 18 | 350 | 162 |
| Southern California | 40 | 10 | 40 | 10 | - | - | 180 | 45 |
| Total | 3,435 | 1,769 | 3,360 | 1,738 | 75 | 31 | 306 | 157 |
| YOUNG-GROWTH SAW TIMBER | | | | | | | | |
| Eastside Sierra | 67 | 26 | 67 | 26 | - | - | 111 | 43 |
| Westside Sierra | 357 | 312 | 354 | 310 | 3 | 2 | 344 | 301 |
| Coast Range Pine | 94 | 74 | 93 | 73 | 1 | 1 | 543 | 428 |
| Redwood--Douglas-fir | 511 | 488 | 506 | 486 | 5 | 2 | 522 | 499 |
| Southern California | (1/) | (1/) | (1/) | (1/) | - | - | (2/) | (2/) |
| Total | 1,029 | 900 | 1,020 | 895 | 9 | 5 | 368 | 322 |
| POLE TIMBER AND SEEDLINGS AND SAPLINGS | | | | | | | | |
| Eastside Sierra | 32 | 25 | 32 | 25 | - | - | 105 | 82 |
| Westside Sierra | 42 | 23 | 41 | 23 | 1 | (1/) | 100 | 55 |
| Coast Range Pine | 17 | 15 | 17 | 15 | (1/) | (1/) | 103 | 91 |
| Redwood--Douglas-fir | 146 | 139 | 144 | 138 | 2 | 1 | 527 | 502 |
| Southern California | (1/) | (1/) | (1/) | (1/) | - | - | (2/) | (2/) |
| Total | 237 | 202 | 234 | 201 | 3 | 1 | 203 | 173 |
| NONSTOCKED | | | | | | | | |
| Eastside Sierra | 6 | - 9 | 4 | - 8 | 2 | -1 | 12 | -18 |
| Westside Sierra | 70 | 56 | 65 | 52 | 5 | 4 | 98 | 79 |
| Coast Range Pine | 16 | 13 | 15 | 12 | 1 | 1 | 48 | 39 |
| Redwood--Douglas-fir | 11 | 8 | 8 | 5 | 3 | 3 | 19 | 14 |
| Southern California | (1/) | (1/) | (1/) | (1/) | - | - | (2/) | (2/) |
| Total | 103 | 68 | 92 | 61 | 11 | 7 | 49 | 32 |
| ALL CLASSES | | | | | | | | |
| Eastside Sierra | 615 | 204 | 613 | 205 | 2 | -1 | 157 | 52 |
| Westside Sierra | 1,901 | 1,267 | 1,887 | 1,257 | 14 | 10 | 332 | 221 |
| Coast Range Pine | 730 | 430 | 714 | 419 | 16 | 11 | 228 | 134 |
| Redwood--Douglas-fir | 1,518 | 1,028 | 1,452 | 1,004 | 66 | 24 | 358 | 243 |
| Southern California | 40 | 10 | 40 | 10 | - | - | 173 | 43 |
| Total | 4,804 | 2,939 | 4,706 | 2,895 | 98 | 44 | 277 | 170 |

1/ Less than 0.5 million board feet.
2/ Less than 0.5 board foot.

Table 27.- Average annual growth of growing stock on commercial forest land by species group, stand-size class, and subregion, California, 1952

| Stand-size class and subregion | Total | | Softwoods | | Hardwoods | | Average per acre | |
|---|---|---|---|---|---|---|---|---|
| | Gross | Net | Gross | Net | Gross | Net | Gross | Net |
| | Million cubic feet | | | | | | Cubic feet | |
| OLD-GROWTH SAW TIMBER | | | | | | | | |
| Eastside Sierra | 97 | 31 | 97 | 31 | - | - | 39 | 12 |
| Westside Sierra | 251 | 157 | 242 | 149 | 9 | 8 | 71 | 44 |
| Coast Range Pine | 126 | 76 | 113 | 65 | 13 | 11 | 50 | 30 |
| Redwood--Douglas-fir | 153 | 65 | 132 | 59 | 21 | 6 | 63 | 26 |
| Southern California | 8 | 2 | 8 | 2 | - | - | 36 | 9 |
| Total | 635 | 331 | 592 | 306 | 43 | 25 | 56 | 29 |
| YOUNG-GROWTH SAW TIMBER | | | | | | | | |
| Eastside Sierra | 22 | 11 | 22 | 11 | - | - | 36 | 18 |
| Westside Sierra | 72 | 61 | 69 | 58 | 3 | 3 | 69 | 59 |
| Coast Range Pine | 17 | 13 | 16 | 12 | 1 | 1 | 98 | 75 |
| Redwood--Douglas-fir | 106 | 98 | 99 | 92 | 7 | 6 | 108 | 100 |
| Southern California | (1/) | (1/) | (1/) | (1/) | - | - | (2/) | (2/) |
| Total | 217 | 183 | 206 | 173 | 11 | 10 | 78 | 65 |
| POLE TIMBER AND SEEDLINGS AND SAPLINGS | | | | | | | | |
| Eastside Sierra | 5 | 4 | 5 | 4 | - | - | 16 | 13 |
| Westside Sierra | 14 | 9 | 12 | 7 | 2 | 2 | 33 | 22 |
| Coast Range Pine | 9 | 9 | 8 | 8 | 1 | 1 | 54 | 54 |
| Redwood--Douglas-fir | 30 | 27 | 28 | 26 | 2 | 1 | 108 | 97 |
| Southern California | (1/) | (1/) | (1/) | (1/) | - | - | (2/) | (2/) |
| Total | 58 | 49 | 53 | 45 | 5 | 4 | 50 | 42 |
| NONSTOCKED | | | | | | | | |
| Eastside Sierra | 5 | 1 | 5 | 1 | (1/) | (1/) | 10 | 2 |
| Westside Sierra | 15 | 11 | 11 | 8 | 4 | 3 | 21 | 15 |
| Coast Range Pine | 8 | 6 | 6 | 5 | 2 | 1 | 24 | 18 |
| Redwood--Douglas-fir | 6 | 3 | 2 | 1 | 4 | 2 | 11 | 5 |
| Southern California | (1/) | (1/) | (1/) | (1/) | - | - | (2/) | (2/) |
| Total | 34 | 21 | 24 | 15 | 10 | 6 | 16 | 10 |
| ALL CLASSES | | | | | | | | |
| Eastside Sierra | 129 | 47 | 129 | 47 | (1/) | (1/) | 33 | 12 |
| Westside Sierra | 352 | 238 | 334 | 222 | 18 | 16 | 61 | 42 |
| Coast Range Pine | 160 | 104 | 143 | 90 | 17 | 14 | 50 | 32 |
| Redwood--Douglas-fir | 295 | 193 | 261 | 178 | 34 | 15 | 70 | 46 |
| Southern California | 8 | 2 | 8 | 2 | - | - | 35 | 9 |
| Total | 944 | 584 | 875 | 539 | 69 | 45 | 54 | 34 |

1/ Less than 0.5 million cubic feet.
2/ Less than 0.5 cubic foot.

Table 28.- Average annual net growth of live saw timber on commercial forest land by species and by subregion, California, 1952

| Species | All sub-regions | Eastside Sierra | Westside Sierra | Coast Range Pine | Redwood--Douglas-fir | Southern California |
|---|---|---|---|---|---|---|
| | ---------- Million board feet ---------- | | | | | |
| Softwoods | | | | | | |
| Ponderosa and Jeffrey pines | 553 | 60 | 351 | 130 | 4 | 8 |
| Sugar pine | 196 | 3 | 158 | 25 | 10 | - |
| Redwood | 396 | - | - | - | 396 | (1/) |
| Douglas-fir | 787 | 19 | 122 | 164 | 482 | - |
| White fir | 520 | 52 | 357 | 73 | 37 | 1 |
| Calif. red fir | 260 | 54 | 193 | 12 | 1 | - |
| Other | 183 | 17 | 76 | 15 | 74 | 1 |
| Total | 2,895 | 205 | 1,257 | 419 | 1,004 | 10 |
| Hardwoods | 44 | -1 | 10 | 11 | 24 | - |
| All species | 2,939 | 204 | 1,267 | 430 | 1,028 | 10 |

1/ Less than 0.5 million board feet.

Table 29.- Average annual net growth of growing stock on commercial forest land by species and by subregion, California, 1952

| Species | All sub-regions | Eastside Sierra | Westside Sierra | Coast Range Pine | Redwood--Douglas-fir | Southern California |
|---|---|---|---|---|---|---|
| | | | Million cubic feet | | | |
| Softwoods | | | | | | |
| Ponderosa and Jeffrey pines | 99 | 13 | 60 | 24 | (1/) | 2 |
| Sugar pine | 29 | (1/) | 24 | 3 | 2 | (1/) |
| Redwood | 77 | - | - | - | 77 | (1/) |
| Douglas-fir | 144 | 3 | 22 | 39 | 80 | (1/) |
| White fir | 98 | 12 | 65 | 14 | 7 | (1/) |
| Calif. red fir | 53 | 14 | 35 | 4 | (1/) | (1/) |
| Other | 39 | 5 | 16 | 6 | 12 | (1/) |
| Total | 539 | 47 | 222 | 90 | 178 | 2 |
| Hardwoods | 45 | (1/) | 16 | 14 | 15 | - |
| All species | 584 | 47 | 238 | 104 | 193 | 2 |

1/ Less than 0.5 million cubic feet.

Table 30.- Annual cut[1/] of live saw timber and growing stock on commercial forest land, by species group, product, and subregion, California, 1952

| Product and subregion | Live saw timber | | | Growing stock | | |
|---|---|---|---|---|---|---|
| | Total | Soft-woods | Hard-woods | Total | Soft-woods | Hard-woods |
| | -Million board feet- | | | --Million cubic feet-- | | |
| SAWLOGS | | | | | | |
| Eastside Sierra | 745 | 745 | 0 | 120.9 | 120.9 | 0 |
| Westside Sierra | 1,544 | 1,541 | 3 | 250.9 | 249.3 | 1.6 |
| Coast Range Pine | 506 | 506 | 0 | 81.2 | 81.2 | 0 |
| Redwood--Douglas-fir | 2,479 | 2,466 | 13 | 408.3 | 399.9 | 8.4 |
| Southern California | 8 | 8 | 0 | 1.3 | 1.3 | 0 |
| Total | 5,282 | 5,266 | 16 | 862.6 | 852.6 | 10.0 |
| VENEER LOGS AND BOLTS | | | | | | |
| Eastside Sierra | 12 | 12 | 0 | 1.7 | 1.7 | 0 |
| Westside Sierra | 34 | 34 | (2/) | 5.1 | 5.1 | (3/) |
| Coast Range Pine | 12 | 12 | 0 | 1.7 | 1.7 | 0 |
| Redwood--Douglas-fir | 274 | 274 | (2/) | 39.7 | 39.7 | (3/) |
| Southern California | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 332 | 332 | (2/) | 48.2 | 48.2 | (3/) |
| PULPWOOD LOGS | | | | | | |
| Eastside Sierra | 1 | 1 | 0 | 0.2 | 0.2 | 0 |
| Westside Sierra | 3 | 3 | 0 | 0.5 | 0.5 | 0 |
| Coast Range Pine | 0 | 0 | 0 | 0 | 0 | 0 |
| Redwood--Douglas-fir | 56 | 56 | (2/) | 10.7 | 10.7 | (3/) |
| Southern California | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 60 | 60 | (2/) | 11.4 | 11.4 | (3/) |
| OTHER PRODUCTS[4/] | | | | | | |
| Eastside Sierra | 1 | 1 | 0 | 0.1 | 0.1 | 0 |
| Westside Sierra | 8 | 8 | (2/) | 1.9 | 1.8 | 0.1 |
| Coast Range Pine | 1 | 1 | (2/) | 0.3 | 0.3 | (3/) |
| Redwood--Douglas-fir | 47 | 43 | 4 | 8.3 | 7.2 | 1.1 |
| Southern California | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 57 | 53 | 4 | 10.6 | 9.4 | 1.2 |
| ALL PRODUCTS | | | | | | |
| Eastside Sierra | 759 | 759 | 0 | 122.9 | 122.9 | 0 |
| Westside Sierra | 1,589 | 1,586 | 3 | 258.4 | 256.7 | 1.7 |
| Coast Range Pine | 519 | 519 | (2/) | 83.2 | 83.2 | (3/) |
| Redwood--Douglas-fir | 2,856 | 2,839 | 17 | 467.0 | 457.5 | 9.5 |
| Southern California | 8 | 8 | 0 | 1.3 | 1.3 | 0 |
| Total | 5,731 | 5,711 | 20 | 932.8 | 921.6 | 11.2 |

1/ Includes logging residue.
2/ Less than 0.5 million board feet.
3/ Less than 50 thousand cubic feet.
4/ Cooperage, fuelwood, poles, piling, round mine timbers, fence-posts, hewn ties, shingles, and miscellaneous.

Table 31.- Annual cut[1/] of live saw timber on commercial forest land by subregion and species, California, 1952

| Species | All sub-regions | Eastside Sierra | Westside Sierra | Coast Range Pine | Redwood--Douglas-fir | Southern California |
|---|---|---|---|---|---|---|
| | | | Million board feet | | | |
| Softwoods | | | | | | |
| Douglas-fir | 2,338 | 56 | 255 | 240 | 1,786 | 1 |
| Ponderosa and Jeffrey pines | 1,274 | 450 | 604 | 191 | 24 | 5 |
| Redwood | 988 | 0 | 2/ | 0 | 985 | 1 |
| True firs | 663 | 209 | 403 | 29 | 21 | 1 |
| Sugar pine | 324 | 28 | 233 | 56 | 7 | (3/) |
| Other[4/] | 124 | 16 | 89 | 3 | 16 | 0 |
| Hardwoods | 20 | 0 | 3 | (3/) | 17 | 0 |
| All species | 5,731 | 759 | 1,589 | 519 | 2,856 | 8 |

1/ Includes logging residue.
2/ Giant sequoia.
3/ Less than 0.5 million board feet.
4/ Incense cedar; Port Orford white and western red cedars; Sitka spruce; western hemlock; lodgepole and western white pines.

Table 32.- Annual cut[1/] of growing stock on commercial forest land by subregion and species, California, 1952

| Species | All sub-regions | Eastside Sierra | Westside Sierra | Coast Range Pine | Redwood--Douglas-fir | Southern California |
|---|---|---|---|---|---|---|
| | | | Million cubic feet | | | |
| Softwoods | | | | | | |
| Douglas-fir | 372.1 | 8.9 | 40.7 | 37.9 | 284.5 | 0.1 |
| Ponderosa and Jeffrey pines | 205.9 | 73.4 | 98.8 | 31.3 | 1.5 | 0.9 |
| Redwood | 163.8 | 0 | [2/]0.3 | 0 | 163.4 | 0.1 |
| True firs | 105.2 | 33.2 | 64.0 | 4.6 | 3.2 | 0.2 |
| Sugar pine | 50.9 | 4.4 | 36.7 | 8.7 | 1.1 | (3/) |
| Other[4/] | 23.7 | 3.0 | 16.2 | 0.7 | 3.8 | 0 |
| Hardwoods | 11.2 | 0 | 1.7 | (3/) | 9.5 | 0 |
| All species | 932.8 | 122.9 | 258.4 | 83.2 | 467.0 | 1.3 |

1/ Includes logging residue.
2/ Giant sequoia.
3/ Less than 50 thousand cubic feet.
4/ Incense cedar; Port Orford white and western red cedars; Sitka spruce; western hemlock; lodgepole and western white pines.

Table 33.- Lumber production and number of active sawmills by subregion and mill-size class, California, 1951

| Mill-size class | Lumber production | | | | | | | Active sawmills | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total all subregions | | Eastside Sierra | Westside Sierra | Coast Range Pine | Redwood--Douglas-fir | Southern California | Total all subregions | | Eastside Sierra | Westside Sierra | Coast Range Pine | Redwood--Douglas-fir | Southern California |
| Annual production M bd. ft. | Million bd. ft. | Percent | Million board feet | | | | | Number | Percent | Number | | | | |
| 50,000 and over | 918 | 19.0 | 346 | 313 | (1/) | 259 | 0 | 13 | 1.6 | 4 | 4 | 1 | 4 | 0 |
| 25,000 to 49,999 | 969 | 20.0 | 228 | 221 | 93 | 427 | 0 | 29 | 3.6 | 7 | 7 | 3 | 12 | 0 |
| 15,000 to 24,999 | 631 | 17.1 | (1/) | 436 | 72 | 323 | 0 | 44 | 5.5 | 2 | 21 | 4 | 17 | 0 |
| 10,000 to 14,999 | 617 | 12.7 | 87 | 166 | 110 | 254 | 0 | 51 | 6.4 | 7 | 14 | 9 | 21 | 0 |
| 5,000 to 9,999 | 693 | 14.3 | 35 | 204 | 119 | 335 | 0 | 99 | 12.5 | 5 | 29 | 17 | 48 | 0 |
| 1,000 to 4,999 | 720 | 14.9 | 33 | 197 | 69 | 417 | 4 | 281 | 35.3 | 11 | 61 | 27 | 199 | 3 |
| 500 to 999 | 57 | 1.2 | 2 | 25 | 5 | 23 | 2 | 84 | 10.6 | 2 | 37 | 7 | 35 | 3 |
| 50 to 499 | 37 | 0.8 | 1 | 13 | 3 | 17 | 3 | 156 | 19.6 | 4 | 50 | 11 | 80 | 11 |
| Less than 50 | 1 | - | 0 | 1 | (2/) | (2/) | (2/) | 39 | 4.9 | 0 | 18 | 8 | 11 | 2 |
| All classes | 4,843 | 100.0 | 732 | 3/1,576 | 471 | 2,055 | 9 | 796 | 100.0 | 42 | 261 | 87 | 387 | 19 |

1/ Included in Westside Sierra subregion figures to prevent disclosure of individual mill production.
2/ Less than 0.5 million board feet.
3/ Includes production of 112 million bd. ft. outside the subregion, by 1 mill (annual production 25 to 50 million board feet) in Coast Range Pine and 2 mills (annual production 15 to 25 million board feet) in Eastside Sierra subregions.

Table 34.- Lumber production by species, California[1/]
1900 - 1952

| Year | Total | Species | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Ponderosa pine | Sugar pine | Redwood | Douglas-fir | True firs[2/] | Other soft-woods[3/] | Hard-woods[4/] |
| | Million board feet | | | | | | | |
| [5/]1900 | 738 | 286 | 52 | 360 | 18 | - | 21 | 1 |
| 1905 | 1,062 | 364 | 120 | 412 | 101 | 52 | 10 | 3 |
| 1910 | 1,266 | 409 | 102 | 543 | 103 | 66 | 38 | 5 |
| 1915 | 1,119 | 390 | 114 | 419 | 118 | 51 | 26 | 1 |
| 1920 | 1,482 | 509 | 141 | 476 | 162 | 152 | 41 | 1 |
| 1925 | 2,043 | 786 | 299 | 490 | 206 | 232 | 28 | 2 |
| 1930 | 1,514 | 647 | 197 | 400 | 133 | 111 | 26 | (6/) |
| 1935 | 1,356 | 680 | 161 | 329 | 96 | 61 | 29 | 0 |
| 1940 | 1,954 | 955 | 294 | 388 | 196 | 67 | 54 | (6/) |
| 1945 | 2,261 | 915 | 195 | 444 | 373 | 286 | 48 | (6/) |
| 1946 | 2,681 | 1,134 | 294 | 243 | 507 | 427 | 75 | 1 |
| 1947 | 3,408 | 1,321 | 281 | 530 | 769 | 418 | 88 | 1 |
| 1948 | 3,963 | 1,458 | 237 | 793 | 926 | 471 | 78 | (6/) |
| 1949 | 3,803 | 1,186 | 311 | 744 | 1,180 | 345 | 37 | (6/) |
| 1950 | 4,253 | 1,235 | 326 | 875 | 1,203 | 556 | 58 | (6/) |
| 1951 | 4,843 | 1,236 | 327 | 867 | 1,611 | 705 | 97 | (6/) |
| 1952 | 4,837 | 1,168 | 318 | 899 | 1,700 | 652 | 99 | 1 |

Source: Forest Survey Release No. 20 - "A Century of Lumber Production in California and Nevada," for years 1900-51. Year 1952 in Forest Survey Release No. 23.

1/ Includes a relatively small volume of production in Nevada for years 1900-1945 incl.

2/ White, California red, and grand firs.

3/ Incense cedar; Port Orford white and western red cedars; Sitka spruce; western hemlock; lodgepole, western white, digger and Monterey pines.

4/ Includes lumber from imported as well as domestic logs.

5/ Figures of Census 1900 actually apply to year 1899.

6/ Less than 0.5 million board feet.

Table 35.- Production of logs and bolts by commodity, California, 1946, 1948, 1950 and 1952

| Commodity | Unit | Volume in units | | | | Number of plants 1952 |
|---|---|---|---|---|---|---|
| | | 1946[1] | 1948[1] | 1950[2] | 1952[2] | |
| Plywood[3] | M bd. ft. | 15,462 | 71,440 | 142,485 | 252,645 | 22 |
| Container veneer | M bd. ft. | 32,805 | 31,750 | 17,905 | 20,270 | 9 |
| Pulpwood | M bd. ft. | 2,241 | 15,927 | 48,840 | 99,836 | 7 |
| Shingle and sawed shake | M bd. ft. | 17,310 | No survey | 14,840 | 5,690 | 36 |
| Cooperage | M bd. ft. | 11,306 | 7,256 | 5,275 | 4,530 | [4]/1 |
| Poles | Pieces | 21,690 | No survey | 12,325 | 45,260 | 4 |
| Piling | Lin. ft. | 172,460 | No survey | 547,950 | 1,116,400 | 4 |

1/ From Table 1, Forest Research Note No. 79, California Forest and Range Experiment Station.

2/ From Table 2, Forest Survey Release No. 23, California Forest and Range Experiment Station.

3/ Includes logs going into both plywood and green veneer plants.

4/ Permission to publish these figures granted by producer.

## PROCEDURES

### Area Delineation

To determine the extent, location, and condition of all forest lands in California, aerial photographs were delineated on the basis of (1) present cover of vegetation, (2) suitability for growing timber crops, and (3) age class and density of timber stands. The minimum unit classified and mapped under the Forest Survey was forty acres. However, under a cooperative agreement set up between the State Division of Forestry and the Forest Service, the California State Legislature provided funds for intensification of the survey on wild lands outside the national forest boundaries. On the latter area, classification and mapping were intensified to a 10-acre minimum to obtain detailed information on vegetation types and soils not obtainable with available Federal Survey funds.

### Transfer to Base Maps

After photo delineation was completed, Timber Stand Maps were prepared by transferring photo classifications to 7-1/2-minute quadrangle size base maps at a common scale of 2 inches to the mile. These maps were completed for the Redwood--Douglas-fir and Coast Range Pine subregions, Shasta and Tehama counties, and the wild lands outside the national forest boundaries in the Westside Sierra subregion. For the remaining commercial forest land of the State, photo delineation was completed and mapped only along sample transect lines. Kind and density of vegetation, age-structure and density of coniferous timber stands, and other information pertinent to the vegetative resource were shown. As a final preparation for area measurement, other related information such as political and economic subdivisions, ownership, and commercial timber type boundaries was added.

### Area Measurement and Compilation

To estimate the areas, parallel sample lines spaced 2 or 3 miles apart were drawn across the quadrangle base maps. Adjustments in age-density timber classifications were made along these transect lines after field examination to correct for changes caused by fire and cutting since the date of aerial photography so that class acreages when compiled would show conditions as of the inventory year. Acreage figures were then obtained by recording line intercept measurements of all pertinent class subdivisions along each of the sample lines transecting the quadrangles. The ratio of total line length to total area for the quadrangle provided the factor to convert line segments in inches to area in acres. These acreages were then totaled by county, and adjusted if necessary, to check with the Bureau of Census acreages by

counties.3/ Estimated acreage figures appearing in the tables were compiled and summarized by means of punch cards and card tabulating equipment.

## Ownership Determination

Information on forest land ownership in California was procured from two sources. In the Redwood--Douglas-fir and Coast Range Pine subregions and Shasta and Tehama counties ownership data were obtained through a cooperative ownership study in conjunction with the Production Economics Research Branch of the Agricultural Research Service (formerly the Bureau of Agricultural Economics). In this study ownership information was obtained from county tax assessment rolls and other official records of the County Assessors and Tax Collectors, using a line sampling technique4/ and by mail questionnaires to owners. Detailed data were obtained about the owners and the type and size of private holdings in these areas which were not available for the rest of the State. For the portion of forest land not covered in this study, ownership data was obtained from detailed maps prepared for the evaluation of the forest situation in California in 1945 as part of a nationwide forest reappraisal. These maps were brought up to date by adjusting for changes in National Forest and National Park ownerships.

## Stand-Size Class Determination

The national pattern of data presentation established for Forest Survey provides for the classification of timber stands on commercial forest land according to stand-size class. In California an age-density timber classification was used. The procedure for converting age classes to stand-size classes follows:

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3/ From "Areas of the United States 1940," U. S. Bureau of the Census. Some county land areas have been adjusted for changes up through 1950.

4/ Details of the line sampling method used for estimating area and procedure for estimating number of owners are given in "A New Approach to Forest Ownership Surveys," by A.A. Hasel and Adon Poli, Land Economics, Vol. XXV, No. 1, Feb. 1949, pp. 1-10.

For a more detailed statement of the overall ownership survey procedure, see "Conducting a Survey of Ownership of Forest Land in California," by Adon Poli, Agricultural Economics Research, Vol. IV, No. 1, Jan. 1952, pp. 8-12.

| Age class | Stand-size class |
|---|---|
| Old growth<br>Old growth--young growth<br>Young growth--old growth | Old-growth saw timber |
| Large young growth | Young-growth saw timber |
| Small young growth | Pole timber and seedlings and saplings |
| Nonstocked | Nonstocked |

The small young growth timber stands were classified on photos (and field checked) along sample transect lines by both age-density and stand-size classes. The relationships thus established were then applied to the small young growth stands to determine the pole timber and seedling and sapling areas. The nonstocked areas were considered the same under both systems of classification.

## Volume Determination

The inventory of timber volumes required the use of both aerial photographs and field sampling. Photographs were used to classify the timber stands being sampled and to guide the field crews in arriving at the sampling location. At each location, three sample plots were established and detailed information recorded on the timber stand classification, and on the species, size, quality, growth, cull, and mortality of individual trees. The field crew also checked the photo classification of the forest stands in the vicinity of each location.

One thousand five hundred twenty-seven (1,527) field locations were established throughout California. These locations, selected by systematic sampling, were spaced 4-3/4 miles apart in cardinal directions. An exception was made in the dense and semi-dense old-growth saw-timber stands in the redwood type. There, three field locations were randomly selected in each 6,000 acres.

From the data collected at the field locations, the average net volume per acre was determined for each age-density class of timber stands. Some of the age-density classes were grouped to provide more accurate volume estimates. These groupings were based on statistical tests of the significance of differences between classes. Finally, total volume estimates by age class, stand-size class, area, and ownership were determined for each subregion by applying age-density-class volume per acre figures to the acreages of commercial forest land in those classes. Volume estimates were compiled in board feet, by both the Scribner and International

1/4-inch log rules, and in cubic feet, using local volume tables based on standard volume tables prepared by the California Forest and Range Experiment Station. Volume estimates for the Southern California subregion were based on Forest Service estimates made in 1945.

## Cull and Breakage Determinations

Net board foot and cubic foot volumes were obtained by deducting cull and breakage from gross volumes of the growing stock. These deductions for cull and breakage were based on studies made especially for this purpose.5/ Cull and breakage are expressed as a composite factor because breakage is so closely related to defect (decay) that it is difficult to separate the two factors, and because in the West both Forest Service and commercial cruising practices combine cull and breakage as one figure. The amount of breakage, independent of cull, averaged about 4 percent of the gross board foot volumes for all species.

Deductions for cull and breakage varied between species and species groups and by diameter class within species. Two types of cull factors were used. For coniferous species (Douglas-fir, true firs, and redwood) with reliable external cull indicators, such as conks, swollen knots, fire scars, broken tops, etc., deductions were made on an individual tree basis. For the remaining conifers, flat or average cull deductions (plus an additional breakage allowance) were determined for and applied by Dunning's tree classes. For hardwoods the deductions were based on average cull and breakage losses determined for each species.

Based on board foot volumes, the average cull and felling breakage deductions for all living trees of the principal species were as follows:

| Species | Percent | Species | Percent |
|---|---|---|---|
| Douglas-fir | 24.9 | California red fir | 12.3 |
| Ponderosa and Jeffrey pines | 5.8 | Sugar pine | 10.5 |
| White fir | 17.0 | Hardwoods | 58.0 |
| Redwood | 26.1 | | |

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5/ Cull and breakage factors for the Coast Range Pine and Redwood--Douglas-fir subregions are published in Forest Survey Releases No. 7 and 13 respectively. Data for the pines and incense cedar in the Sierra subregions are published in Forest Research Note No. 90.

## Site-Quality Determination

Three broad site classes, high, medium, and low, were established to express the relative capacity of commercial forest land to produce timber crops. Field site determinations made on the 4,147 volume sample plots were grouped into these three classes. For each type, the number of site determinations in each site class was expressed as a percentage of all observations within the type. These percentages were then applied to the total area by type to provide estimates of relative site quality.

The relationship between the broad site quality classes--high, medium, and low--and site class and site index ratings of commercial forest land is shown in the following table and explained in the appended footnotes.

| Broad rating | All types except Redwood & Douglas-fir | | Redwood & Douglas-fir types | |
|---|---|---|---|---|
| | Site class 1/ | Site index 2/ | Site class 3/ | Site index 4/ |
| High | IA | 200 | I | 200 |
| | | | II | 170 |
| | I | 175 | III | 140 |
| | II | 150 | | |
| Medium | III | 125 | IV | 110 |
| | IV | 100 | | |
| Low | V | 75 | V | 80 |

1/ According to D. Dunning in California Forest and Range Experiment Station Research Note No. 28, December 1, 1942, "A Site Classification for the Mixed-Conifer Selection Forests of the Sierra Nevada."

2/ The total height that the average dominant trees reach at 300 years of age.

3/ According to R. E. McArdle and W. H. Meyer in U. S. Dept. Agr. Tech. Bul. 201, October 1930, "The Yield of Douglas-fir in the Pacific Northwest."

4/ Average total height of dominant and codominant Douglas-fir trees at 100 years of age.

## Growth Determination

The estimate of net annual growth for the subregion was derived from increment borings taken from trees on field sample plots. From measurements of growth over a ten year period, the average periodic annual gross growth for the inventory year was determined for each age-density class. Ingrowth was accounted for in all growth calculations. Gross growth was converted to net growth by subtracting the combined average annual mortality from competition, storm, insects, disease, and fire. The result was the average annual net growth per acre for each age-density class. When age-density classes were inadequately sampled, they were grouped with other classes as required. Total net annual growth for the State, then, was the sum of the products of commercial forest land acreages in each age-density class times the net annual growth per acre of that class.

## Mortality Determination

One year mortality (from causes other than fire) was recorded on all survey volume sample plots. Comparison of the mortality derived from these data with that from permanent sample plots showed that the survey sample was not intensive enough to provide an adequate measure of mortality. Also, these one-year measurements failed to account for the periodic change in mortality rate.

In the Pine region, survey mortality was adjusted to conform with long-range data from permanent sample plots maintained by the Division of Forest Management and the Division of Entomology. These plots are located in the Westside Sierra subregion and in the transition zones between this subregion, the Coast Range Pine and Eastside Sierra subregions. In the Redwood region, survey mortality was supplemented by data from a special mortality survey.

From these data, per-acre mortality figures were computed for all age-density classes. To these values were added the per-acre fire loss derived from a special study using data taken from State Division of Forestry and U. S. Forest Service fire records.

The estimate of total mortality in the inventory year was obtained by multiplying the commercial forest land acreage in each age-density class by the per acre mortality of that class and totaling the results.

## Logging Residue

The amount of logging residue was determined through application of data collected by the Experiment Station in a 1953 logging residue survey. Sixteen one-acre plots were taken in the

California Pine region and twelve one-half acre plots in the Redwood region. These plots were selected so as to sample (1) cutting operations on government and private land and (2) size of operation.

From the field plot measurements, logging residue--in board feet and cubic feet--was determined and expressed as a percentage of timber products produced. These percentages were then applied to the timber products output from growing stock in California in 1952 to obtain total logging residue. Logging residue was equal to 9 percent of the volume of products in board measure (International 1/4-inch rule) and 22 percent in terms of cubic feet.

### Timber Products

The 1952 output of timber products for California was determined from several sources. The lumber production estimate was obtained from the Bureau of the Census and Western Pine Association.

The veneer log estimate came from the Bureau of the Census, supplemented by Forest Survey data on container veneer.

Production data on pulpwood, cooperage, poles, piling, and shingles and sawed shakes was obtained directly from the producers.

Production estimates for miscellaneous products were derived from figures obtained from key persons and companies in industry, from government agencies, and by projection of trends.

## ACCURACY OF DATA

Estimates of timber volumes, timber growth and forest areas are subject to two general classes of errors: (1) Nonsampling errors in photo classification, field measurement and tabulation, and office computation and compilation, and (2) sampling errors. The size of the nonsampling errors is not determinable. They were kept to a minimum by frequent checking and close supervision of all phases of the field and office work. When these nonsampling errors are negligible or compensating, then sampling errors provide measures of the reliability of the volume, growth and area estimates and can be computed by statistical methods. Magnitudes of the sampling errors depend upon the intensity of the sampling and the variability of the data.

Statistical analysis of the forest area, timber volume, and timber growth data shows the following sampling errors[6/] for the State of California. The estimate of annual cut was derived from a number of different sources and hence does not permit the calculation of a sampling error.

| Class | Sampling Error | |
|---|---|---|
| | Units | Percent |
| Commercial forest land | 107,365 acres | 0.62 |
| Total net volume | 1,102 million cu.ft. | 1.66 |
| Total annual net growth | 35 million cu.ft. | 6.07 |

Statistics of forest area, timber volume, and timber growth are subject to increasing sampling errors as the acreage, volume, or growth decreases.

The following tabulation may be used as a guide in estimating the probable sampling error of the subdivisions of forest areas, volumes and growth.

| Commercial forest land | | Growing stock | | Annual net growth of growing stock | |
|---|---|---|---|---|---|
| Area | Sampling error | Volume | Sampling error | Volume | Sampling error |
| Thousand acres | Percent | Million cu.ft. | Percent | Million cu. ft. | Percent |
| 17,317 | 0.6 | 66,411 | 1.7 | 584 | 6.1 |
| 10,000 | 0.8 | 30,000 | 2.5 | 250 | 9.3 |
| 5,000 | 1.1 | 10,000 | 4.3 | 100 | 14.7 |
| 1,000 | 2.6 | 1,000 | 13.5 | 50 | 20.9 |
| 500 | 3.6 | 500 | 19.1 | 10 | 46.4 |
| 100 | 8.1 | 100 | 42.8 | 5 | 65.7 |
| | | | | 2 | 103.8 |

6/ At the level of one standard error; that is, the chances are 2 in 3 that the actual area, volume, and growth will be within the range of plus and minus 0.6 percent of the estimated area, 1.7 percent of the estimated timber volume, and 6.1 percent of the estimated timber growth.

## DEFINITION OF TERMS

### Area

Forest land area. Includes (a) lands which are at least 10 percent stocked by trees of any size and capable of producing timber or other wood products, or of exerting an influence on the climate or on the water regime; (b) land from which the trees in (a) have been removed to less than 10 percent stocking and which have not been developed for other use; (c) afforested areas; and (d) chaparral areas.

Commercial forest land area. Forest land which (a) is producing, or physically capable of producing, usable crops of wood (usually saw timber), (b) economically available now or prospectively, and (c) not withdrawn from timber utilization.

Noncommercial forest land area. Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land and (b) incapable of yielding usable wood products (usually saw timber) because of adverse site conditions, or so physically inaccessible as to be unavailable economically in the foreseeable future. Includes chaparral land.

Chaparral land area. Lands supporting heavily branched dwarf trees or shrubs, usually evergreen, the crown canopy of which covers more than 50 percent of the ground and whose primary value is watershed protection. The more common chaparral constituents are species of Quercus, Cercocarpus, Garrya, Ceanothus, Arctostaphylos, and Adenostoma. Types dominated by such shrubs as Artemisia, Opuntia, Purshia, Gutierrezia or semi-desert species are not commonly considered chaparral.

Nonforest land area. Land that does not qualify as forest land. Includes land which has never supported forest growth; land from which the forest has been removed to less than 10 percent stocking and has been developed for other use, such as grazing, agricultural, residential, or industrial; all land in thickly populated urban and suburban areas; and water classified by the Bureau of Census as land.

### Types

Types segregate all land according to existing cover of vegetation or other condition.

Commercial timber type. An extensive area of commercial forest land or reserved productive forest land stocked with a commercial

conifer[7] or group of commercial conifers. Includes commingled areas of minor conifer[8], hardwood, chaparral, and grassland temporarily nonstocked with commercial conifers but located in areas where commercial conifers normally grow.

The commercial forest land area of California has been classified into major forest types by two systems of classification: national Forest Survey types and local California types. Definitions of types from both systems are presented here. The primary difference between them is the inclusion of a mixed type (pine--Douglas-fir--fir) in the California system of classification. This mixed type is important in California because mixed timber stands occupy so much of the commercial forest land and pose special management problems. To meet Forest Survey standards the area in the mixed type is subdivided between the Douglas-fir, ponderosa pine, white pine, and fir-spruce types. Another difference is the inclusion of the areas with sugar pine in the pine and mixed types by California classification but in the white pine type by the Forest Survey classification. Definitions of types under each system are listed below:

Forest Survey types

a. Douglas-fir. Forests in which 50 percent or more of the stand is Douglas-fir, except where redwood, sugar pine, or western white pine comprise 20 percent or more, in which case the stand would be classified as redwood type or white pine type.

b. Hemlock-Sitka spruce. Forests in which 50 percent or more of the stand is western hemlock and/or Sitka spruce.

c. Redwood. Forests in which 20 percent or more of the stand is redwood.

d. Ponderosa pine. Forests in which 50 percent or more of the stand is ponderosa pine, Jeffrey pine, sugar pine, limber pine, Arizona pine, Apache pine, or Chihuahua pine, singly or in combination except where western white pine or sugar pine comprise 20 percent or more, in which case the stand would be classified as white pine type.

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7/ Commercial conifers are Douglas-fir, ponderosa pine, Jeffrey pine, sugar pine, white fir, California red fir, redwood, grand fir, western hemlock, western white pine, western redcedar, Sitka spruce, incense cedar, lodgepole pine, Port-Orford-cedar, and mountain hemlock.

8/ Minor conifers are Bishop pine, California torreya, Pacific yew, knobcone pine, digger pine, weeping spruce, juniper, and pinyon pine.

e. Western white pine. Forests in which 20 percent or more of the stand is western white pine or sugar pine.

f. Lodgepole pine. Forests in which 50 percent or more of the stand is lodgepole pine.

g. Fir-spruce. Forests in which 50 percent or more of the stand is true fir (Abies spp.), Engelmann spruce, Colorado blue spruce, or mountain hemlock, singly or in combination, except where western white pine comprises 20 percent or more, in which case the stand would be classified as white pine.

California types

a. Pine--Douglas-fir--Fir. Areas with mixtures of the commercial pines and/or Douglas-fir, incense cedar and the true firs in which no one species comprises as much as 80 percent of the commercial conifer cover.

b. Pine. Areas with ponderosa, Jeffrey, or sugar pine comprising more than 80 percent of the commercial conifer cover.

c. Douglas-fir. Areas with Douglas-fir comprising more than 80 percent of the commercial conifer cover; or mixtures of Douglas-fir and the true firs in which Douglas-fir comprises 20 percent or more of the commercial conifer cover.

d. Redwood. Areas with redwood comprising 20 percent or more of the commercial conifer cover. Douglas-fir occurs as the principal associate of redwood throughout this type.

e. Fir. Areas with true firs comprising more than 80 percent of the commercial conifer cover.

f. Lodgepole pine. Areas with lodgepole pine comprising 80 percent or more of the commercial conifer cover.

Other timber and vegetative types

a. Coniferous woodland. Areas with such trees as knobcone pine, digger pine, Bishop pine, pinon pine, juniper, other minor conifers, and scattered or scrub trees of commercial conifer species, covering more than 5 percent of the ground space and predominant over hardwoods that may partly compose the cover.

b. Hardwoods (woodland). Areas with hardwood trees (oaks, madrone, tanoak, etc.) covering more than 50 percent of the ground except where in mixture with commercial conifers or herbaceous vegetation.

c. Woodland-grass. Areas with hardwood trees and herbaceous vegetation occurring in mixture--without commercial conifers--and the trees covering from 5 to 80 percent of the ground area and predominant over minor conifers present in the cover.

d. Shrub and herb types consist of the following, where not in mixtures with minor conifers or hardwoods:

1. Chaparral. Areas with such shrubs as manzanitas, scrub oaks, and chamise covering more than 50 percent of the ground.

2. Coastal sagebrush. Areas with such shrubs as California sagebrush, coyote brush, and wild buckwheats covering more than 50 percent of the ground.

3. Great Basin sagebrush. Areas with such shrubs as big sagebrush, bitterbrush, and saltbushes covering over 20 percent of the ground.

4. Grass. Areas with grasses and associated herbaceous vegetation covering more than 50 percent of the ground except where the type qualifies as woodland-grass.

5. Marsh. Areas with the herbaceous vegetation characteristic of very poorly drained areas.

6. Desert. Areas with only those shrubs characteristic of the Mojave and Colorado Deserts occurring in any density, together with included barren areas.

Nonvegetation types

a. Barren. Bare ground, rocky areas, river beds, mine dredgings, and talus essentially devoid of vegetation.

b. Cultivated, urban and industrial. Areas that are under cultivation or are used for residential or industrial purposes.

## Timber Stand Classes

Stand-size classes used by Forest Survey to classify timber stands on commercial forest land.

a. Saw-timber stands. Stands having a minimum net volume per acre of 5,000 board feet (1,500 board feet in East-side Sierra subregion), International 1/4-inch rule, in saw-timber trees (11.0 inches d.b.h. and larger) for all species.

1. Old-growth saw-timber stands. Saw-timber stands in which more than 50 percent of the net board-foot volume is in old-growth saw-timber trees.

2. Young-growth saw-timber stands. Saw-timber stands in which 50 percent or more of the net board-foot volume is in young-growth saw-timber trees.

b. Pole-timber stands. Stands failing to meet the saw-timber stand specifications, but at least 10 percent stocked with pole-timber and larger trees and with at least half the minimum stocking in pole-timber trees (5.0 to 10.9 inches d.b.h.).

c. Seedling and sapling stands. Timber stands not qualifying as either saw-timber or pole-timber stands but having at least 10 percent stocking of trees and with at least half the minimum stocking in seedlings and saplings (0 to 4.9 inches d.b.h.).

d. Nonstocked and other areas not elsewhere classified. Areas not qualifying as saw-timber, pole-timber, or seedling and sapling stands.

Age classes of commercial conifer stands used in classifying commercial forest land in California.

a. Old growth. Stands in which mature trees 9/ compose more than 80 percent of the conifer canopy.

b. Old growth--young growth. Stands in which mature trees compose from 50 to 80 percent of the conifer canopy.

c. Young growth--old growth. Stands in which mature trees compose 20 to 50 percent of the conifer canopy.

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9/ All trees considered to have passed their optimum growth.

d. Young growth. Stands in which mature trees compose less than 20 percent of the conifer canopy.

1. Large young growth. For the Coast Range Pine and Westside Sierra subregions, more than 20 percent of the immature trees are larger than 11.0 inches d.b.h.; for the remaining subregions more than 5 percent of the immature trees are larger than 11.0 inches d.b.h.

2. Small young growth. Eighty percent or more (95 percent or more in the Eastside Sierra and Redwood--Douglas-fir subregions) of the immature trees are less than 11 inches d.b.h.

Stocking classes of commercial conifer stands

a. Well stocked. Stands that are 70 percent or more stocked with present or potential growing stock trees.

b. Medium stocked. Stands that are 40 to 69 percent stocked with present or potential growing stock trees.

c. Poorly stocked. Stands that are 10 to 39 percent stocked with present or potential growing stock trees.

d. Nonstocked. Areas that are 0 to 10 percent stocked with present or potential growing stock trees.

## Tree Classes

Pole-timber trees. Trees 5.0 inches d.b.h. and larger of commercial species that do not meet specifications for saw-timber trees but do meet regional specifications of species, soundness, and freedom from defect.

Saw-timber trees. Trees of commercial species which have a minimum diameter at breast height of 11.0 inches and which meet the following specifications of merchantability:

a. For conifer species, 25 percent or more of the gross scale of the tree in board feet is in merchantable material.

b. For hardwood species, 40 percent or more of the gross scale of the tree in board feet is in merchantable material.

c. For all species, trees classified as merchantable on a board-foot basis are considered merchantable on a cubic-foot basis.

Salvable dead trees. Merchantable dead standing trees not less than 30 inches d.b.h. and considered by the observer to be without evidence of defect and not excessively limby.

## Cull and Defect

Cull factor. Amount of defect expressed as a percent of the gross volume of the tree or stand.

Cull trees. Live trees of saw-timber or pole-timber size that are unmerchantable for sawlogs now or prospectively because of defect or rot.

## Volume

Net volume. Gross wood volume less deduction for cull and breakage.

All-timber volume. Net volume in cubic feet of live and salvable dead saw-timber trees and pole-timber trees of commercial species, and cull trees of all species from stump to a minimum 4.0-inch top inside bark. Includes bole only of softwoods but both bole and limbs of hardwoods to a minimum 4.0-inch diameter inside bark.

Live saw-timber volume. Net volume in board feet, International 1/4-inch rule, of live saw-timber trees.

a. Redwood trees. Volumes measured to an average utilized top with a minimum of 12.0 inches diameter inside bark.

b. All other trees. Volumes measured to an average utilized top with a minimum of 8.0 inches diameter inside bark.

Growing stock. Net volume in cubic feet of live saw-timber trees and live pole-timber trees from stump to a minimum 4.0-inch top (central stem) inside bark.

Sawlog portion. Net volume in cubic feet of saw-timber trees between stump and merchantable top.

Upper stem portion. Net volume in cubic feet of bole of saw-timber trees between merchantable top and a point on the bole with a minimum top 4.0 inches in diameter inside bark when it exists.

## Growth and Mortality

Net annual growth. The change during a specified year in net volume of live saw timber or growing stock on commercial forest land resulting from natural causes.

Annual timber mortality. The net volume removed from live saw timber or growing stock on commercial forest land during a specified year through death from natural causes.

## Timber Cut

Annual cut. The net volume of live saw timber or growing stock cut or killed by logging on commercial forest land during a specified year.

Logging residue. The net volume of live saw timber or growing stock cut or killed by logging on commercial forest land and not converted to timber products.

Timber products. The volume of timber products cut from growing stock and other sources.

Timber products from other sources. The volume of timber products cut from cull trees, salvable dead trees, limbs, saplings, material less than 4 inches in diameter, timber on noncommercial and nonforest lands, and residues from manufacturing plants.

## Ownership Classes

National forest. Federal lands which, by executive order or statute, have been designated as national forests, purchase units, or experimental areas or have been placed under the administration of the Forest Service.

Indian. Indian tribal lands and trust allotments, that is, lands held in fee by the Federal Government but administered and managed for Indian tribal groups or allotted in trust to individual Indians.

Bureau of Land Management. Federal lands under the jurisdiction of the Bureau of Land Management.

Other Federal. Lands owned by the Federal Government not classed as national forest, Indian, or Bureau of Land Management.

State. Lands in State ownership or lands under lease to States for 50 years or more.

County and municipal. Lands in county and municipal ownership.

Private. Land in private ownership.

a. Farm. Private commercial forest land in farms but excluding leased lands on which farm operators do not control timber use.

b. Industrial and other private ownership. Commercial forest land in private ownership other than farm.

## Tree Species

Principal tree species found on the commercial forest land in the State include:

### Softwoods

| | |
|---|---|
| Redwood | Sequoia sempervirens (D. Don) Endl. |
| Douglas-fir | Pseudotsuga menziesii (Mirb.) Franco |
| Ponderosa pine | Pinus ponderosa Laws. |
| Jeffrey pine | Pinus jeffreyi Grev. and Balf. |
| Sugar pine | Pinus lambertiana Dougl. |
| Western white pine | Pinus monticola Dougl. |
| California red fir | Abies magnifica A. Murr. |
| White fir | Abies concolor (Gord. and Glend.) Lindl. |
| Grand fir | Abies grandis (Dougl.) Lindl. |
| Incense-cedar | Libocedrus decurrens Torr. |
| Port-Orford-cedar | Chamaecyparis lawsoniana (A. Murr.) Parl. |
| Sitka spruce | Picea sitchensis (Bong.) Carr. |
| Western hemlock | Tsuga heterophylla (Raf.) Sarg. |
| Mountain hemlock | Tsuga mertensiana (Bong.) Carr. |
| Western redcedar | Thuya plicata Donn. |
| Lodgepole pine | Pinus contorta Dougl. |

### Hardwoods

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| California black oak | Quercus kelloggii Newb. |
| Tanoak | Lithocarpus densiflorus (Hook. & Arn.)Rehd. |
| Aspen | Populus tremuloides Michx. |
| Alder (white alder) | Alnus rhombifolia Nutt. |
| (red alder) | Alnus rubra Bong. |

## FOREST SURVEY PUBLICATIONS

| Forest Survey Release No. | Title | Date Issued |
|---|---|---|
| 1 | Vegetation Types and Forest Conditions of the Santa Cruz Mountains Unit of California. (Out of print.) | May 1, 1939 |
| 2 | Vegetation Types and Forest Conditions of Douglas, Ormsby and Southwestern Washoe Counties, Nevada. (Out of print.) | Aug. 1, 1941 |
| 3 | Land Utilization Statistics for the Northern Sierra Nevada. (Out of print.) | May 1, 1942 |
| 4 | Forest Areas, Timber Volumes and Vegetation Types in California. | Mar. 1, 1946 |
| 5 | Forest Land Ownership in Northern Mendocino County, California. | June 1, 1948 |
| 6 | Commodity Production from Commercial Forest Land in California - 1946. | June 15, 1948 |
| 7 | Cull Factors for Forest-Tree Species in Northwestern California. | June 1, 1950 |
| 8 | Area and Ownership of Forest Land in Siskiyou County, California. | Dec., 1950 |
| 9 | Area and Ownership of Forest Land in Trinity County, California. | April, 1951 |
| 10 | Area and Ownership of Forest Land in Mendocino County, California. | Oct., 1951 |
| 11 | Area and Ownership of Forest Land in Lake County, California. | Feb., 1952 |
| 12 | Forest Statistics for the Coast Range Pine Subregion in California. | April, 1952 |
| 13 | Cull and Breakage Factors and Other Tree Measurement Tables for Redwood. | May, 1952 |
| 14 | Area and Ownership of Forest Land in Sonoma County, California. | Sept., 1952 |

| Forest Survey Release No. | Title | Date Issued |
|---|---|---|
| 15 | Forest Products Used in Mines in California and Nevada. | Nov., 1952 |
| 16 | Area and Ownership of Forest Land in Humboldt County, California. | Nov., 1952 |
| 17 | Lumber Production in California and Nevada - 1951 | Dec., 1952 |
| 18 | Area and Ownership of Forest Land in Del Norte County, California | Jan., 1953 |
| 19 | Forest Statistics for the Redwood--Douglas-fir Subregion in California. | Jan., 1953 |
| 20 | A Century of Lumber Production in California and Nevada. | June, 1953 |
| 21 | Area and Ownership of Forest Land in Santa Cruz County, California. | Aug., 1953 |
| 22 | Area and Ownership of Forest Land in San Mateo County, California. | May, 1954 |
| 23 | Output of Forest Products in California, 1952. | July, 1954 |
| 24 | Area and Ownership of Forest Land in Shasta County, California. | Nov., 1954 |

| Forest Research Note No. | | |
|---|---|---|
| 55 | Production of Lumber and Other Sawed Products in California and Nevada, 1946 | Oct. 1, 1947 |
| 63 | Production of Logs and Bolts for Plywood, Veneer, Pulpwood, and Cooperage in California, 1948. | Sept. 15, 1949 |
| 65 | Estimated Lumber Production in California, 1948. | Dec. 8, 1949 |
| 66 | Board-Foot and Cubic-Foot Volume Tables for Second-Growth Redwoods. | Feb. 6, 1950 |

| Forest Research Note No. | Title | Date Issued |
|---|---|---|
| 67 | Board-Foot and Cubic-Foot Volume Tables for Some California Hardwoods. | Feb. 23, 1950 |
| 79 | Production of Logs and Bolts for Plywood, Pulp, Container Veneer, Shingles, Cooperage, Poles, and Piling in California, 1950. | Nov., 1951 |
| 90 | Cull and Breakage Factors for Pines and Incense-Cedar in the Sierra Nevada. | Apr. 13, 1954 |

Technical Papers

| | | |
|---|---|---|
| 2 | Ownership and Use of Forest Land in the Coast Range Pine Subregion of California. | June 1, 1953 |
| 7 | Ownership and Use of Forest Land in the Redwood--Douglas-fir Subregion of California. | June, 1954 |

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